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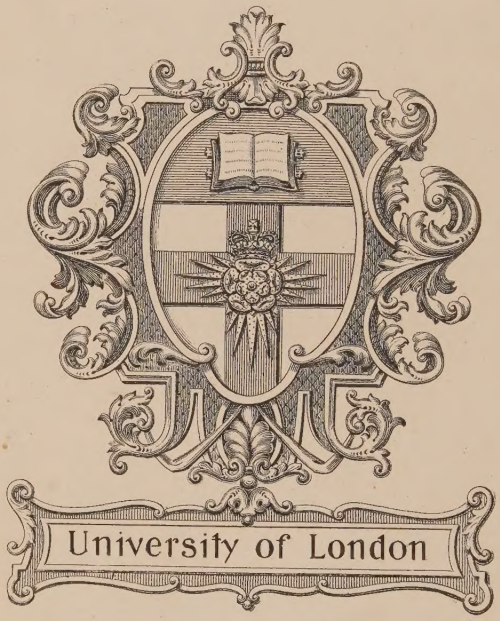
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VOL. VI.

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SCHOOLS INQUIRY COMMISSION.

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Vol. VI.

GENERAL REPORTS

OF

ASSISTANT COMMISSIONERS.

BURGH SCHOOLS IN SCOTLAND, AND SECONDARY EDUCATION IN FOREIGN COUNTRIES.

Presented to both Houses of Parliament by Command of Her Majesty.

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SCHOOLS INQUIRY COMMISSION.

REPORT

BY

MR. D. R. FEARON.

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REPORT

ON THE

EDUCATION IN CERTAIN BURGH SCHOOLS, AND OTHER SCHOOLS OF SECONDARY EDUCATION, IN SCOTLAND.

My Lords and Gentlemen, Christmas, 1866.

In the spring of this year, March 1866, I had the honour to receive the following instructions from you through your Secretary. Reference to instructions March 1866

Schools Inquiry Commission,
2, Victoria Street, Westminster,
7th March 1866.

Sir,

Her Majesty's Commissioners have thought it desirable to institute a comparison, as regards the quality of the education, between the middle schools in England and those in Scotland. They consider that this inquiry may be best conducted by sending one of their Assistant Commissioners to Scotland, and have appointed you to this duty. They have been informed by Her Majesty's Commissioners appointed to inquire into the schools in Scotland, that the cities of Edinburgh and Glasgow, and the towns of Aberdeen, Ayr, Dumfries, Hamilton, Inverness, Perth, and Stirling, will afford fair representatives of the education in the burgh schools in Scotland. You will therefore visit these places and examine, so far as time permit, such schools as you may there find giving a similar education, or educating a similar class to the schools which you have already visited in England. But you are not required to confine your investigation to these places, if you should find it possible and desirable to include any schools of importance elsewhere.

The Commissioners consider that six weeks will be sufficient for you to make this inquiry and draw your report.

By order of the Commissioners,
H. J. Roby,
Secretary.

D. R. Fearon, Esq.

I have now the honour to report that, in accordance with these instructions, I have visited the burgh schools of the nine towns therein named, besides several other institutions of a public and private character, in or near those towns, which afford a secondary education; have investigated their system and methods of education; and have examined, so far as time permitted, the scholars of both sexes whom I found receiving instruction in them. How these instructions have been carried out.

Names and number of the schools visited.

The following is a list of the schools which I visited,—

Edinburgh	*The High School	(public).
	The Academy	(ditto).
	Heriot's Hospital	(ditto).
	A large commercial school	(private).
Glasgow	*The High School	(public).
Aberdeen	*The Grammar School	(ditto).
	Gordon's Hospital	(ditto).
Ayr	*The Academy	(ditto).
Dumfries	*The Academy	(ditto).
Hamilton	*The Academy	(ditto).
Inverness	*The Royal Academy	(ditto).
	The High School	(ditto).
Perth	*The Academy	(ditto).
	The Sharp Institution	(ditto).
Stirling	*The High School	(ditto).
Dollar	The Academy	(ditto).

The whole of the six weeks allowed for this inquiry was occupied in visiting these 16 schools; and I was unable, within the period allotted, to visit any other educational establishments.

Method of conducting the inquiry.

Those of the above-named institutions which are marked with an asterisk * are the "*Burgh Schools*" of their respective towns. In all of these I undertook some examination of the scholars, and otherwise investigated pretty thoroughly the methods and results of the instruction given in them, but to some of the other schools named above, my visits were necessarily very brief. On receiving the instructions of March 7th I wrote to the principals of the nine schools therein named, inquiring at what time their summer vacations commenced, and asking for a list of the authors or portions of authors which the upper and lower classes in the several departments of their schools were reading. It was my desire to see each of these burgh schools at the most favourable time, viz., immediately before the vacation; when the work of the year was drawing to a close, and the results would be ripe for inspection and examination. Moreover, the peculiar system of promotion which prevails in Scotch burgh schools, which is quite different to that pursued in English public schools, and which I shall endeavour presently to describe (see page 24), rendered it specially necessary to adopt these precautions. I believe that in the case of all the schools I visited, except the High School of Glasgow, I was fortunate enough to have chosen the most favourable time of the year for my inspection; in the case of Glasgow High School my visit was unfortunately a little late. I arrived there some days before the date named for the commencement of the vacation; but I found that a custom, peculiar, so far as I observed, to the scholars of this school, of anticipating the vacation by some days, had already drawn off many of the scholars from the different departments; so that, although I was quite able, by hearing the different classes taught, and by questioning orally in some of the classes, to form an opinion on the merits of the teachers and the methods of instruction pursued in the school, I did not think it well, under the circumstances, to give the scholars who remained, and many of whom were actually on the point of departure, any

written examination. In the other eight burgh schools I gave both oral and written examinations, and I believe I visited each of them at the very best time of the year (I might almost say in the very best week of the year), for observing the quality of the education which they profess to give to their scholars.

The following is the information which I received in answer to my inquiries as to the date of the vacations in the nine burgh schools :—

Vacations in.	Begin.	End.
1. Glasgow High School	June 1	Aug. 1.
2. Hamilton Academy	,, 20	,, 1.
3. Inverness Academy	,, 20	,, 12.
4. Aberdeen Grammar School	,, 22	,, 7.
5. Stirling High School	July 1	,, 1.
6. Ayr Academy	,, 7	Sept. 15.
7. Perth Academy	,, 10	,, 10.
8. Dumfries Academy	,, 10	,, 10.
9. Edinburgh High School	,, 31	Oct. 1.

Acting on this information, I divided the time allowed me for my inquiry in the following way,—

May 27—31. Glasgow High School.
June 1— 2. Inquiries in Glasgow and Edinburgh.
,, 4— 5. Hamilton Academy.
,, 7—12. Aberdeen Grammar School.
,, 12. Gordon's Hospital, Aberdeen.
,, 13—15. Inverness Royal Academy.
,, 16. Inverness High School.
,, 18—19. Perth Academy.
,, 19. The Sharp Institution, Perth.
,, 20—21. Stirling High School.
,, 22. Dollar Academy.
,, 25—27. Ayr Academy.
,, 28—29. Dumfries Academy.
,, 30–July 4. Edinburgh High School.
July 4 and 5. Edinburgh Academy.
,, 4— 5. Heriot's Hospital, Edinburgh.
,, 6. A Private School in Edinburgh.
,, 7— 9. Inquiries at Edinburgh.

Reason for mentioning these details.

I think it well to mention these details in order that the Commissioners may be able, when reading the observations which I shall now have the honour to submit to them as the results of my short tour in Scotland, to see clearly on what amount of experience those results are based, and thus to determine with precision the amount of reliance which they may think fit to place on my conclusions. It will be remarked that the six weeks allowed me for this inquiry were almost entirely occupied in visiting, inspecting, and examining the nine burgh which were named in my instructions. As there was only time to visit a very few other schools, the principle upon which I proceeded in the selection of those schools was to visit any middle schools in or near the nine towns which from their recent origin, or other circumstances, I might have reason to think would present phenomena different from those exhibited by the burgh schools, and would thus enlarge as much as possible my experience of Scotch secondary education. Upon my examination of the nine burgh schools, and my short visits to these seven

other institutions, combined with brief inquiries among professors, advocates, and others acquainted with educational matters in Edinburgh and Aberdeen, the following conclusions are founded. An estimate of the value of those conclusions must of course partly be based upon the consideration, whether the nine burgh schools visited by me were fair specimens of their class throughout Scotland. Although I am not responsible for the selection of these nine schools, (which was made by those best qualified to do so,) I may perhaps be permitted to remark, that those schoolmasters and professors in Scotland whose opinion I asked on this point, considered that it would be safe to regard these nine schools as adequate representatives of burgh schools in the more important towns of Scotland.* It was of course felt by all those whom I consulted on this matter, and I feel it very strongly myself, that in a six weeks' tour I could not hope to obtain a complete view of Scotch middle education, and that I must not attempt to give the Commissioners a complete or exhaustive report on the subject. Some indeed of my Scotch friends urged me to apply for an extension of the time allowed for my tour. But I felt sure that the Commissioners in wording my instructions as they had done, and in laying down the short limit of six weeks, had intended to intimate that no such general investigation of the subject was required of me; and that I should be best carrying out the spirit, by acting upon the letter, of my instructions. The six weeks allowed me for carrying out these instructions were quite sufficient, that is so say, for *investigating the quality of the education given in those nine burgh schools, and a few other middle schools, with the view of instituting "a comparison as regards the quality of the education, between the middle schools in England and those in Scotland;"* and the following report does not profess to do anything more than this. The drawing of the report has, however, occupied me a much longer time; and I beg to take this opportunity of thanking the Commissioners for the considerate kindness which they have shown in permitting me an extension of time in which to complete it. I desire also to take this opportunity of thanking those friends, and others interested and experienced in Scotch educational matters, who assisted me with information or suggestions; and especially Professors Fraser, Blackie, and Sellar of Edinburgh University; Dr. Hodson, Rector of Edinburgh Academy; Mr. A. C. Sellar, Advocate, of the Scotch Educational Commission; Mr. Black, of Aberdeen, Her Majesty's Inspector of Schools; Dr. Miller, Rector of Perth Academy; Mr. Barrack, Rector of Aberdeen Grammar School; Mr. Müller, Master of Modern

* Since the following Report was printed, I have been informed on good authority that these nine schools are, with the exception of Edinburgh Academy, the best schools in Scotland, and are therefore not fair representatives of burgh school education in general. I have already remarked that I did not select these nine schools. (See my instructions, page 1.) But I wish it to be clearly understood that so far as I have been able to compare the education in Scotch with that in English Schools, the comparison is principally based on my visits to the schools named on page 2. I do not profess to take a comprehensive view of Scotch secondary education. (See note on page 60.)

Languages in the same school; Mr. Macdonald, Rector of Ayr Academy; Mr. Cairns, Rector of Dumfries Academy; Dr. Bryce, Mathematical Master in Glasgow High School; and Dr. Bedford, House Governor and Head Master of Heriot's Hospital, Edinburgh.

I desire also to acknowledge the liberal manner in which all masters and teachers in these schools admitted me to their classes; permitted me to listen to their teaching, to question, and examine their scholars, and to trouble them with a number of oral and written questions.

The five points of the inquiry, on which the outline of the Report is framed.

My instructions (see page 1) required me to visit and examine certain schools with a view to a comparison, as regards the quality of the education, between the middle schools in England and those in Scotland. In setting forth on this inquiry it appeared to me, that an estimate of *the quality* of any education must be based mainly on the following considerations, viz.:—

I. *What is its Cost?* Because an education which is good or fair at one (*i. e.*, a low or reasonable) price, may be considered bad at another (*i. e.*, a very high) price.

II. *What is the class of scholars intended to receive it?* Because that which is a good education for those children whose school life lasts twelve years, may be a bad one for those who have only six or eight years in which to pursue it.

III. *What is the character of the buildings and premises in which the instruction is carried on?* Because experience has shown that these largely influence the results of instruction.

IV. *What are the qualifications of the teachers?* Because a well-devised system of education or instruction may be comparatively inoperative, if administered by inefficient persons; whereas, even a moderate system may produce excellent results in the hands of able and efficient administrators.

V. *What are the effects of the education on the scholars?*

Accordingly, I kept these five considerations in view throughout my tour; and upon them I have framed the outline of the following Report.

As regards the method of conducting the inquiry, it is not necessary to add much. In inspecting and examining the nine burgh schools I followed, so far as time permitted, the method which I pursued in the case of grammar schools in London, Oxfordshire, Berkshire, and Hertfordshire, and of which I have spoken on pages 248–252 of my General Report on Secondary Education in the Postal District of London. For the purpose of making a fair comparison between the results of instruction in English grammar schools and these Scotch burgh schools, I used in Scotland the same examination papers as in England (see my London Report, page 249), and those papers to which it is necessary to make reference in this Report will be found printed in Appendix XI.

These Scotch schools are to be compared with English secondary

My instructions directed me to examine, so far as time should permit, schools giving a similar education, or educating a similar class to that of the schools which I had already visited in England (see page 1). The schools which I had visited in Oxfordshire,

schools educating the middle class.

Berkshire, and Hertfordshire, were only the endowed grammar schools of those counties; but those which came under my inspection in London were of a more various character, comprising, besides the grammar schools, every kind of school, whether endowed, proprietary, or private, which might be considered to educate boys or girls of the *middle class:* the *secondary schools,* in fact, of London. I endeavoured, on pages 236–239 of my General Report on the London District, to define what, in my view, this English middle class is, and what the English secondary school is, for the purpose of an educational inquiry such as that on which I was engaged. For a discussion of the considerations on which that definition is based, I beg to refer the Commissioners to those pages. It will be sufficient to repeat here the conclusion at which I there arrived, and which is briefly stated on page 237, viz., that, educationally speaking, and for the purpose of this inquiry, *middle class boys are* (in England) *boys whose general education ends between their fourteenth and their nineteenth years of age:* and that these middle scholars might be conveniently divided into *three grades,* according to the age at which they leave school for the actual business of life, viz.:

What the middle class is (educationally viewed), and what secondary schools in England are.

Reference to my Report on secondary education in London.

Three grades of secondary scholars.

First Grade. Those who stay at school till they are in their eighteenth or nineteenth years of age.

Second Grade. Those who stay till they are in their sixteenth or seventeenth years of age.

Third Grade. Those who stay only till they are in their fourteenth or fifteenth years of age.

Throughout my investigations in London, and elsewhere in England, I kept this conception of the main object and scope of my inquiry steadily in view. In many of the schools which I visited in England, I found, of course, some boys who were preparing to continue their education at the Universities of Oxford and Cambridge, or at one of the colleges in connexion with the University of London, beyond their eighteenth or nineteenth years of age; and I could not, therefore, help noticing some of the phenomena of superior education which thus came under my view. But I endeavoured to avoid dwelling on these phenomena, to concentrate my attention on the secondary education, and, as far as possible, to exclude from consideration the relations of the English Universities to these schools. *Residence* in an English University seldom now commences before a lad has completed 18 years of age, and, as an education prolonged beyond that age can scarcely be considered a secondary education, there was no necessity for me to venture upon the great subject of the work of English schools as preparatory to residence in the English Universities, or to intrude into that vast region of superior education which is the peculiar province of Oxford and Cambridge. As far as it was applicable, I have endeavoured to adhere to this definition of the middle class, and of secondary schools, in my Scotch inquiry; and wherever the terms "secondary school," "middle scholars," "school (or scholars) of the first (second, or third) grade," and similar expressions, are found, they are employed in the same sense as in my English Report, and depend for their intention upon the

Superior education is excluded from consideration.

The same definition of secondary schools and middle scholars has been adopted in this Scotch inquiry.

foregoing definitions, and the explanations given in pages 236–239 of that Report. But there are one or two important differences between English and Scotch habits, which it is necessary to recognize clearly, lest we should be misled by the fallacy of false analogy. Essentially, of course—that is, in all that is really important for the purpose of this inquiry—the definition of middle scholars will be as applicable to Scotland as to England. There is not much difference between the youths of the two countries in respect of the rate of physical and intellectual growth, or of any other bodily or mental forces. It may be presumed that the capacity for culture of an ordinary Scotch lad is generally similar to that of an ordinary English lad. In the case of the Scotch, as in that of the English boy, it may be assumed, that, if his instruction be commenced when he is about six years old, and regularly continued until he is 11 or 12 years old, he ought by that time to have received a fair *primary* education; that if his schooling then ceases, and he is turned out to earn his bread, he cannot be said to have received anything *more* than a primary education; that if his schooling is continued after the age of 12 he may be considered to have entered on the stage of *secondary* education; that if, at the age of 18 or thereabouts, he leaves school for active life, he cannot be said to have advanced much beyond the limits of this secondary education; but that, if he continues after that age to devote his time to learning, he may then be considered to have entered the province of *superior* education. So far the case is the same in outline with the Scotch as with the English boy; my definition is equally applicable to both countries; and there is no more difficulty in determining who is a Scotch middle scholar than in defining who is an English middle scholar. The middle scholar is, and, from the nature of the case must be, in Scotland, as in England, the scholar whose general education ends between the completion of his twelfth and nineteenth years of age. At first sight, therefore, the comparison between these two countries (as between any two in which the climate, industry, and institutions are not very dissimilar) seemed to be a tolerably simple affair. But when I came to inquire further, in what schools are youths of this age educated? What is the actual age and length of stay of lads in the Scotch schools? Whether the burgh schools occupy in Scotland the entire province of secondary education, as defined above; and if not, in what other schools or institutions this secondary education is exhibited? Where is superior (as opposed to secondary) education carried on in Scotland? And, above all, what is the age at which students enter and leave the Scotch Universities?—I found that wide allowance must be made for the difference between the manners, customs, and social traditions of the two countries. To some of these customs it will be necessary for me to make further and fuller allusion in the course of this Report. But for the present it will be sufficient to call attention to the two following facts, viz.:—

But certain national peculiarities and differencemust be observed.

(*a*) *The combination of primary and secondary education in Parochial and Burgh Schools.* The parochial schools carry on instruction into the dead languages; and often prepare their scholars

Two of these national peculiarities in education mentioned.

A peculiarity in schools.

for the Scotch Universities; while the burgh schools frequently undertake the education of infants from the earliest elements.

A peculiarity in Universities.

(*b*) *The combination of secondary and superior education in the Scotch Universities.* The Universities undertake the instruction of lads of 15 and 16 years old, in the rudiments of the dead languages, mathematics, &c, besides carrying on a higher culture with more advanced students.

Character and work of the Scotch universities.

It is most important to bear in mind this great difference between the Scotch Universities and those of Oxford and Cambridge. The Scotch Universities not only profess to give their older students an opportunity of higher culture, the quality of which as compared with that of Oxford and Cambridge it is not my province here to discuss, but they also cover much of the ground which in England is occupied by schools; that is to say, they instruct youths of from 15 to 18 years old in such subjects as those which are taught in the 4th, 5th, and 6th forms of our great public schools. Of the general effects of this custom upon Scotch secondary education, I shall have to speak hereafter; but at present it will be sufficient to remark that one necessary effect of it upon the burgh schools is, that they seldom retain their male scholars beyond the age of 15 or 16. Many of course go into business at that age, but even those who intend to prosecute their studies generally leave school then and go to the University, where they consider that they will obtain instruction equally well suited to their capacity, from more distinguished teachers, with greater freedom, with a larger competition, and sometimes at an actually *cheaper rate* than at the schools; and where, moreover, they will be able to make some advance in the course required for the ministry. Hence it happens that I rarely found boys of more than 16 years in the burgh schools which I visited, and I think it may be fairly concluded that, following the principle of definition employed in my English Report, the Scotch burgh schools are for the most part middle schools of the second grade. However, as there were these and other disturbing elements in my calculations, I determined to take some account of the condition and occupation of the parents of scholars, as well as of the age of scholars in these schools; and the results of this branch of my inquiry I shall lay before the Commissioners in due course.

Effect of these upon the Burgh schools,

causing them to be middle schools of the second grade.

I now proceed to report the results of my inquiries into Scotch secondary education under the headings mentioned on page 5.

I. Cost of education in burgh schools.

I.—*Cost of the Education.*

The cost of any education may be analysed into two main factors, viz.—

The cost of any education may be analysed into two elements.

(i.) The cost of bringing and keeping master and pupil in contact with each other.

(ii.) The price paid for instruction.

It is desirable to keep the distinction between these two factors of educational expense clearly in view, because in respect of each of them there is a remarkable and important difference between the Scotch and English customs.

Consideration of the first of

(i.) If children are not taught by their own parents, but by a

master, it is clear that either the master must come to them or they to the master. When the master comes to, and remains near, his pupils, the system is that which we call domestic tuition. The school, on the contrary, is an institution where education is conducted on the converse system, viz., that the pupils go to and remain near the master. When, then, any school is established, the first question that arises is where and how shall the pupils lodge and be fed. In the case of the inhabitants of very large towns, such as London, Glasgow, Manchester, and Edinburgh, this question does not obtrude itself so irrepressibly as in smaller towns and rural districts. For in those large towns the children are in most cases able to go to the school from their parent's houses every morning, and to return home again each evening. But in smaller towns and rural districts the question must be met and solved. Now there is an essential difference between the methods of solving this question in the English and Scotch public schools. In cases where it is impossible for the pupils to return to their parents' houses, it has been the English custom to provide accommodation for them at the school, and to give the charge of them out of school hours to the master. This practice being once introduced was, on account of certain advantages and conveniences attaching to it, gradually imitated also in cases where the pupils might have returned home daily, and thus it has come to pass that in most English public schools (as in the Universities of Oxford and Cambridge) accommodation is provided for the pupils in houses under the care of the teachers; such schools are called *boarding schools*, and most English public schools are of this nature. The head-master, and sometimes the assistants also, not only teach during the regular school hours, and receive the payments or fees of the pupils for such instruction, but they also lodge and feed them in houses by the school, and receive payment for so doing. Thus it will be found that the emoluments of most English grammar school masters consist of two parts, namely, the fees (where the instruction is not *free*), and the charges for boarding and lodging the pupils. The master is thus not only a teacher, but also a lodging-house keeper. And as the profits of lodging and boarding children are greater than the profits of merely instructing them, the tendency of masters and governors of schools in England is to convert them all into boarding schools.

these elements, viz., *the cost of keeping master and pupil in contact.*

English mode of solving this question.

By the employment of boarding schools.

In Scotland, the towns where the schools can be well filled by pupils coming from and returning to their parents homes each day, are even fewer than in England. The population is more sparse there than here. In such a town as Glasgow the High School *might* be filled with boys living within daily walking or riding distance of the school. But in such towns as Ayr (population 18,573), Inverness (population 12,509), and Stirling (population 13,707), the school, if it is to flourish and to be thoroughly useful, must draw scholars from a large radius in the surrounding country. The question, therefore, how to maintain the pupils at the locality where the school is held, is as pressing in Scotland as

Scotch mode of solving it.

in England. But the Scotch solve it differently. No Scotch burgh school that I have seen is a boarding school. No houses are publicly provided in which the pupils lodge or are fed. The patrons, governors, and masters of these schools are in no way publicly concerned with the place or manner in which pupils spend their time out of school hours. The pupils who come from a distance lodge by themselves privately with friends, or in the ordinary lodging houses of the town. If any master chooses to take lodgers in his house he does it privately, and his capacity as a purveyor of meat, drink, and bedding is quite distinct from his capacity as a teacher. Thus Scotch burgh schools are day schools, not as in England boarding schools. The burgh school, like the Scotch University, is an institution where daily instruction is given. Neither those who provide nor those who impart the teaching concern themselves with the pupils out of school hours. The pupils flock from all parts to the locality where the school is held, and lodge and live where and how they like. To the teacher they are known solely as attending in classes for a certain number of hours during certain days of the week. He is no way concerned with them out of school hours. They are at such seasons entirely independent of him, and provide for themselves.

By allowing the scholars to board at large.

Burgh schools are day schools.

Which of the two systems is the cheaper?

It might at first sight be thought that of these two systems the English must be the cheaper. It might be supposed that a number of students lodging together in one house, sleeping in common dormitories, and fed at a common table, would be more cheaply accommodated than when they are isolated and living apart in lodging houses. And I have no doubt that, with well-constructed buildings, and a judicious public management of such boarding houses, they would be found more economical than private lodging houses. But hitherto it has not been so in England. The anxiety of many among those who board and lodge the students to make large gains, encouraged by the eagerness of parents to get rid of responsibility concerning their children, has caused the cost of boarding and lodging in English secondary schools to be greater than that for which a Scotch student can board and lodge himself in private apartments. Something must of course be allowed for the difference in manners and wealth of the two countries. But, when such allowance has been made, it will still be apparent that the Scotch system of allowing scholars to board and lodge where they please is the most generally economical (*see* Appendix VIII.) As regards the particular and special cases of *very poor scholars*, it has of course great advantages over the English system. In England it is impossible for the *very poor* scholar to attend the public school without being dependent on *charity*, the charity of the dead or of the living. The exceptionally poor scholar cannot raise the funds requisite to pay an average price for boarding, and even if he could do so, it would be disagreeable to him to enter such a boarding house. For the society therein forms a kind of club, in which the peculiarities of dress or usage which severe thriftiness entails may render the member an object of ridicule or persecution; and membership in

Theoretically, the English; actually, the Scotch.

See Appendix VIII.

Advantages of the Scotch system to the very poor scholar.

which makes it almost impossible for a poor lad to keep down his expenditure with the same rigour as he would in private lodgings. In illustration of this, I may perhaps be permitted to mention a fact derived from my own experience at Oxford. I was a member of a hard-working college, in which the tutors made efforts to keep down the expenditure of the undergraduates. In that college we had many Scotchmen, for there were very good exhibitions tenable there by Scotch students. And I remember the sensation created amongst us, even among the more thoughtful, by one Scotch student declaring that he could not afford the regular subscription to the boat and cricket clubs. There was a diversity of opinion among us as to what ought to be done to him; but I think there was a general feeling, even among the considerate, that if he really could not afford these heavy but normal burdens, he had no business there; and I remember that the refusal entailed upon him some disagreeable consequences. Real, honest, struggling poverty shuns these wounds and exposures; and thus it is that the Scotch system, while it is more generally cheap than the English, is infinitely more so in the sense of being accessible to the very poor. I was surprised at the accounts given me in Inverness and Aberdeen of the efforts made by poor scholars and students to gain a share of the education offered by the burgh schools of these towns (*see* Appendices I. and VI.) To have endeavoured to ascertain what is the lowest cost at which lads board and lodge themselves in Inverness for the session would have been invidious. Neither would it have been possible to obtain certain information on such a subject. The details of the struggles of these youths are known only to themselves, and cannot be faithfully narrated except by them. But I believe that such efforts as those made by the celebrated Dr. Adam when, in the year 1758, he was a student in Edinburgh University, and which are narrated in Steven's History of the High School of that town, page 110, though now perhaps seldom equalled in intensity, afford an example of what sort of privations poor Scotch scholars will undergo for the sake of education. I found that the general current of opinion among those with whom I spoke in Scotland was in favour of their system of making their public schools to be day schools. They considered that by it they avoided the following among other evils attendant on the boarding school system, viz.:—

Day schools are popular in Scotland.

Reasons alleged for preferring them to boarding schools.

(1.) In boarding schools the masters must either be overworked and harassed with the care of boys, so as not to be fresh and vigorous in school hours; or else the care of the boys must be committed to inferior men, as in English private schools.

(2.) The boarding being the part of his business which brings the master most profit, he is sure ultimately to neglect the day boys' interests; or at least it is certain that the curriculum and style of the school will so eventually shape themselves as to favour the rich and to exclude or harass the poor.

(3.) If the school does continue to draw its patronage from the poor or thrifty, the temptation to underfeed or underbed boys becomes irresistible.

(4.) The association of boys in masses favours expense and idleness; boys will vie with each other. If an unhealthy tone gets into the school it is hard to eradicate it. Boys become apt to attach as much importance to their play as to their work, and sometimes more.

(5.) Idleness and expense are encouraged, even in boys of poor parents, by the entire severance from a recollection of parental efforts, and the relief from the pressure of poverty.

But there is a rising party in Scotland which favours boarding schools.

On the other hand, I found a considerable and an increasing class in Scotland, and especially in Glasgow and Edinburgh, who were in favour of the boarding school system, and I believe that the experiment of a public boarding school on the English model is about to be tried in Edinburgh. It was urged in favour of the English system that in boarding schools—

Reasons which they allege for preferring boarding schools.

(1.) The masters receive better payment; better provision can be made for old age, and masters occupy a more dignified position. The temptation to remain in office after strength and vigour are departed is diminished.

(2.) Boys who are in boarding houses get more polish and cultivation than day-boys.

(3.) Physical development and training can be better promoted in boarding than in day-schools.

(4.) The self-government of the boys in English public schools, as at Harrow, Rugby, and Marlborough, are valuable for training and creation of character.

(5.) Homes are, unfortunately, as often bad as good; and it is frequently well that boys should be secured from the irregularities, dissipation, or vices of home.

(6.) It is practically impossible to prevent masters from taking lodgers; and, if so, it is better to have the fact publicly recognized and under control.

Remarks on this question.

It is not necessary here to pronounce between the two systems of boarding or day schools. The answer to the question which is most suitable to a country must depend principally on the character and habits of the population. If the parents are selfish, frivolous, vulgar, or dissipated, wholly engrossed by money-making or the like, it may be best that children should be removed from their care until a generation has been produced among whom poverty is no shame, and honest labour with moderate gains is thought a worthy mode of existence. It may perhaps reasonably be questioned how English boys, sons of farmers and country professional men, would fare if allowed to lodge by themselves in a country town for the purpose of attending the grammar school of the district. My own belief is, that such an experiment would succeed, and that it is one of the essential preliminary steps towards *popularizing* Secondary Education. But this question I leave to the Commissioners. I will only say that

I think the system productive of good in Scotland, and that I think the custom in that country does not tend to encourage, but rather to avert, vice, idleness, and folly from the youth; and that it is undoubtedly a more economical system than that now generally prevalent in England.* So much for the cost of bringing and keeping master and pupil in contact with each other in Scotch burgh schools.

Consideration of the second of the elements into which the cost of education may be analysed, viz., *the price paid for instruction.*

(ii.) *The cost of instruction* (that is of the attendance at the ordinary classes) in the nine burgh schools has been estimated in Appendices I. to VII. (pages 70, 91, 108, 123, 136, 146, 166). In Appendix IX. will be found a comparison as regards the fees for instruction (as well as other matters) between the nine burgh schools and certain English grammar schools which were visited by me in the postal district of London and the counties of Berks, Herts, and Oxon. From a comparison of these examples and other cases I have come to the conclusion that the cost of instruction in Scotch secondary schools is not really less than that in English grammar schools, but that there is a great and most important difference as to the way in which that expense is provided in England and Scotland, and the view which is taken of it in the two countries.

Appendix IX.

Difference as to the mode in which that expenditure is provided in England and Scotland.

Scotch burgh schools are very moderately endowed. By a scholastic endowment we in England understand lands or money conveyed to the permanent and inalienable use of the school. In this sense of the word the burgh schools can scarcely be said to be endowed at all. Very few of the burgh schools have any property thus permanently conveyed to their use. Only two out of the nine burgh schools which I visited have any endowment of this nature worth mentioning; these are Aberdeen grammar school and the High School of Edinburgh; and on reference to Appendices I. and III. it will be seen how trifling the amount of this real endowment is even in their case. But it is a custom in Scotland to speak of the grants annually given to these schools by vote of the town councils as endowment. It must, however, never be forgotten that in speaking and reckoning of such endowment we are speaking of annual grants which may be diminished or almost entirely withdrawn at the pleasure of a popular and representative body. It would, indeed, be almost as correct to speak of the grants made by Parliament to our primary schools in England as endowment, as to call these grants from the corporations of the Scotch towns to their burgh schools by that name. The only main difference between these two kind of grants is, that whereas Parliament may in any year withdraw all aid from the schools which it now assists, the corporations in Scotland are bound to keep up burgh schools. But what exact amount they shall pay, and how they shall pay it, is not defined; and such payment is in fact constantly fluctuating, and depends on precedents, on the wealth and liberality of the corporation, on the popularity of the school and its

Scotch burgh schools are very little endowed.

Difference between English grammar school endowment and that of a Scotch burgh school.

* It may be added that day schools escape most of the troubles and difficulties respecting religious instruction and the religious profession of their teachers and governors, to which boarding schools are subject. The "religious" difficulty scarcely seems to be felt at all in these burgh schools. (See pages 85, 114.) It seems also to be overcome in more modern day schools. (See pages 188, 193.)

rector or masters, and a hundred other circumstances. I shall avoid as much as possible entering into any of the legal questions which might be involved in this inquiry, and shall therefore not discuss here what is the source from which the corporations derive their liability to keep up the burgh schools, or what the strict legal amount of that liability may be. As the Commissioners are aware there is a Commission now sitting in Edinburgh on the subject of Scotch Secondary Education, and exact official information on these subjects may be derived from them. I will only say, that I found the general impression among those provosts, town councillors, and masters of schools with whom I spoke to be that the *burgh is only bound to provide a suitable building in which masters may receive those who come to them*, in return for which it has of course *the right to appoint the masters, and regulate the fees, and to define what shall be taught.* Beyond this there is no *permanent* obligation. Town councils may, of course, bind themselves down to more than this, but the law requires them to do no more. It is even a question how far the burgh is required to keep the premises of the burgh school in proper repair, and to pay the rates and taxes on them. I found at the time of my visit to Perth a dispute proceeding between the town council and the rector on behalf of the masters of the academy or burgh school respecting the liability of the masters to be rated to the poor for their class-rooms. In this case, however, the decision of the sheriff depute, subsequently confirmed on appeal by that of the sheriff of the county, was that the town council, and not the masters, are the parties responsible for the rate. And in this decision, I am informed, the town council have acquiesced. In the same burgh school I found that the masters were frequently at issue with the town council regarding the execution of repairs; and that many necessary repairs had either been left undone or were done by the masters at their own expense. This, however, is no doubt an example of the lowest view which can be taken by a town council of its obligation to maintain a burgh school, and such cases are probably rare.* As a general rule the obligation is understood to mean an obligation, *to maintain a suitable building in proper repair, free of burdens, in which masters may receive those who come to be taught.* Beyond this there cannot be said to be any permanent liability on the burgh, and respecting any further payments the practice of burghs varies considerably. In some burgh schools all, or almost all, the masters have a small fixed salary promised to them at the time of their appointment, besides the fees they may get from pupils; in others there is no fixed salary. I think, however, judging by the nine burgh schools I visited, that the most usual practice is to give a small salary, about 50*l.* or 60*l.* to the four or five principal teachers (*e.g.* the teachers of classics and mathematics), and to allow the others to be dependent on their fees alone. (See pages 64, 145, 158, 165,

Mode in which Scotch Burgh schools are endowed.

Duties and liabilities of the Burgh.

Payment of the masters.

* See, however, the case of Dumfries Academy; Appendix VII. page 156; and further particulars in reference to this case of Perth Academy, in the same Appendix, page 165.

172.) In any case the *salary* forms a mere trifle in the amount of a Scotch burgh schoolmaster's income; his real dependence is on the fees of pupils.

Masters mainly dependent on fees received from scholars.

The payment of fees may be said to be universal in Scotch burgh schools. Free education, as the term is understood by English tradesmen and farmers, is almost unknown to the Scotch middle classes. Everywhere I found scholars paying their fees as a matter of course. The absence of educational *charities* for the middle classes of Scotland struck me, fresh from visiting a number of these institutions in England, as most remarkable. In the case of our grammar schools the imposition of fees, however common it may now have become, is looked upon by a large portion of the middle, especially the lower middle, class as a hardship. When I inquired of such persons in county towns or London parishes, what was wanted to make the grammar school thoroughly popular, the most common answers were,—"more modern teaching," and—"abolition or lowering of fees." There is a feeling prevalent in England that the middle class has been gradually cheated out of a sort of right to the maintenance of an institution which shall teach for little or nothing (see my General Report on London, p. 331). No such feeling appears to me to prevail in Scotland. Eager as the Scotch are for education, they seem quite prepared to pay for it. The greater willingness of the Scotch tradesmen and clerks to pay a fair price for secondary education, impressed me very much. I think it arises partly from the value they attach to knowledge, and partly from their never having been used to a gratuitous education; but more than than all from the peculiar system on which the payment of those fees is arranged. It is often made a reproach against the Scotch that they sell instruction by measure. In an English public school there is almost always a fixed curriculum, or course of instruction through which a boy is obliged to pass, and for which a parent is obliged to pay a round sum, whether he desires his son to learn the whole of the subjects in that curriculum or not. In most of the Scotch burgh schools on the contrary, a scholar can choose any one of the subjects that are offered in the school, and can study that subject alone to the exclusion of all the rest; and the fee which must be paid for so many hours' instruction per week or per quarter in that subject is fixed (see Appendices I.–VII., pages 70, 90, 104, 120, 135, 147, 158, 166, 170). Thus if a parent wishes his son to learn mathematics, but not Latin or Greek, he is not debarred thereby from sending him to the High School. He may go to the classes of the mathematical master without of necessity attending those of the classical master. Very interesting questions are suggested by

Universality of the payment of fees in burgh schools.

Very few educational charities for the middle classes of Scotland.

The Scotch middle class is more willing to pay for *public* education than the corresponding class in England.

Causes of this.

Different mode of raising the fees in Scotland from that adopted in England.

* The number of *Educational Hospitals*, and the aggregate value of their property, are small in Scotland, compared with England. Some account of these hospitals will be found in Appendix X., pages 177–186. It will be seen that, even in these few Hospitals, the Scotch have already effected or are likely soon to effect certain reforms which are much needed in English Educational Hospitals. (See my London Report, pages 335–340.) The liberal and sensible manner in which the Scotch have sometimes dealt with their educational charities has been strongly impressed upon me. See the case of Dollar Institution, pages 203–4.

the consideration of this difference, as to the mode of arranging fees, between the public middle schools of the two countries. The object of course of the promoters of such schools in both countries is the same, viz.,—the maintenance and encouragement of culture among a mercantile and professional class. The tendency in each country of those classes is the same, viz.,—an avoidance of the more elevating and refining, but more tedious and expensive, branches of study, and a proclivity towards contentment with the more essential branches, as they consider them. In each country the promoters of middle schools desire to raise and refine the tone and level of education. The only question is by which process is that object best attained; viz., by the English custom of maintaining a curriculum at the public schools which shall embrace some of the higher as well as some of the lower subjects, and through which a boy must perforce pass if he is to be a scholar of the public school; or by the opposite extreme of requiring nothing from any scholar beyond the particular subject or subjects which he may select. My own impression, derived solely from my experience in this inquiry, is, that of the two principles the Scotch is by far the wiser; more suitable to the present condition and habits of our middle classes; more likely than anything else to win them back to the grammar schools, and introduce among them a better appreciation of literature and science. One reason why English private schools have succeeded so marvellously among the middle class here, is, their adoption of this principle; and one reason why such private schools are so comparatively rare in Scotland is, that the public schools cut the ground away from them by adopting this principle. This mode, however, of arranging the payment of fees made it very difficult for me to ascertain in each school the exact cost of the instruction to any given scholar; because it was impossible to say, without a more minute inquiry than my time would permit, how many of the subjects taught in the school each scholar takes. Indeed I doubt whether in most burgh schools the registration is sufficiently minute and accurate to enable the authorities to give precise information on this point. Under these circumstances, I thought the best plan would be to frame hypothetical cases, showing what would be the cost in the burgh schools if a boy followed such a curriculum as would be offered in a satisfactory English grammar school. The results of these calculations will be seen in the Appendices (pages 71, 92, 109, 124, 136, 150), and I gather from them and from other sources that instruction is not really much, if at all, cheaper in Scotch Burgh schools than in English grammar schools. The real difference in the two countries is in *the quarter on which the burden falls.* In England our numerous grammar schools are largely endowed. Now, without wishing for a moment to suggest any confiscation of these endowments, or even to enter at all upon the question how far the public has a right to interfere with them, and to regulate their administration, I may fairly assume that these endowments are so much withdrawn from the common wealth, and appropriated to the purpose of educating the young; and that they represent, therefore, a present loss or deficit in one

Which is the better mode?

The Scotch mode of charging fees makes it difficult to estimate the cost of education to any given scholar.

But it seems probable that the cost of instruction in Scotch burgh schools is not much less than in English grammar schools.

The burden of it, however, is differently distributed.

quarter, deliberately incurred by the public for the sake of a gain or balance in another quarter. They may, therefore, be regarded as so much sacrificed to education by the public, and in that sense as a burden on the public. This truth being clearly apprehended, viz., that the English endowments are indirectly a burden on the public for the relief of private purses, the great difference between the distribution of the cost of education in Scotch burgh schools and English grammar schools will at once appear. In the case of English grammar schools a very large proportion (sometimes the whole) of the cost is to be borne by the public, and comparatively little by the parent. Moreover, that cost is (generally) irrespective of the number of scholars benefiting by it. Whether there be 50 scholars at a given grammar school, or 500, the public cost is the same. The public in fact pays (in some cases extortionately), while the very class for which it pays is either apathetic or careless, or declines to avail itself of the offered education, and goes off to spend private money in very questionable private schools. In the case of the Scotch burgh schools little of the cost is borne by the public, and almost all by the parents. Moreover, that cost is self-regulating. If at a given burgh school there be at any time few scholars, little money is there expended. If the number of those scholars increase, the expenditure increases. There is no waste and no encouragement to sloth. At a certain English grammar school which I visited, with an income according to Parliamentary returns of over 400*l.* a year, and annually increasing, I found *two masters* with fixed salaries and *one scholar*. Perhaps one of the most comical scenes ever witnessed in that county was the examination of that one solitary scholar by the venerable and learned head master, the usher, and the assistant commissioner. He was a sickly boy and very ignorant. Before leaving the place I ventured, as a matter of curiosity, to ask the master on what pension he would be willing to retire. "I don't want to retire "at all," said he. "But," said I, "you have only one scholar!" To which he made the astounding reply, "And I don't want "any more. Why should I? I am an old man. This is a good "house and garden, and the place is better than a curacy. "I will not retire if I can help it, and certainly not for less than "the full salary. Why should I?" It would be impossible for a Scotch burgh schoolmaster to take up such ground as this. The absence of endowment has, among other causes, made these schools dependent on popular favour. They have always had a popular government, and have relied on popular sympathy and support. The indifference, apathy, or dislike of the middle classes, at which English grammar schoolmasters in country towns can afford to sneer, would be a death warrant to them. They would be starved out in a month. Hence it has always been with them a condition of existence that they should study the wants and tastes and instincts of the public, and should be thoroughly *en rapport* with the nation. This is the reason why so many of the burgh schools have converted themselves into

Who bears the burden in English schools.

Who in Scotland.

Effects.

"academies" and added a proprietary element to the existing endowment (see Appendix II., page 83, Appendix V., page 133); while in other cases some small modification is made almost every five years to meet and satisfy, from time to time, the altered condition of public opinion. I know that I shall be told that all this is very humiliating to education, and that it will be an evil day for England when the stability of our great educational institutions comes to be measured by that of popular favour or prejudice. But I cannot shut my eyes to the results which I found to follow in Scotch schools from such dependence; to the life, the vigour, the mutual interest between employers and employed, the masters and the public, which are created. The Scotch public takes the keenest interest in its burgh schools. It feels it has a *hold* over its servants the masters; hence it *trusts* them not blindly but intelligently. The Scotch farmer or tallow chandler has none of that jealousy, doubt, or mistrust of the local public school which one sees in the corresponding Englishman. He feels, one may say he *knows*, the school to be a good public servant, and that any dereliction of duty by it will be speedily detected and punished. The consequence is to be seen in the much larger fees that he is willing to pay for public school education than the Englishman. He can get, or thinks he can get, there an article which he wants. His mercantile instinct is satisfied, just as that of the Englishman is by the nostrums of the private adventurer; and how much better grounds he has for his satisfaction I need not declare. The best proof of all that the school is regarded by him as his friend and has his confidence is, that *he will send his girls to it.* At Dumfries, at Ayr, at Inverness, at Perth, at Stirling, and at Hamilton, I found girls studying and being instructed along with boys in the burgh schools. All thoughtful parents will agree with me when I say that no greater proof than this of confidence in a public school could be given by them. And as far as I could judge that confidence is not misplaced (see page 57).

II. Class of scholars receiving this education.

II. *The Class of Scholars receiving this Education.*—(See ante, pages 5–7). I have already mentioned (page 8) my reasons for inquiring into the occupation and social condition of parents in the schools which I visited, as well as into the length of time during which, and the age up to which, scholars remain in the burgh schools.

The mixture of social classes in Scotch burgh schools.

(i.) The existence of a *mixture of social classes* in Scotch schools is well known, and is deservedly the pride of Scotch educationalists. Such difficulties as those which often beset the promoters of English secondary education and primary schools, viz., that employers will not mix with the employed; that the man of 500*l.* a year looks down on the man of 80*l.* or 100*l.* a year; that the "genteel" refuse to use the same school as the "respectable;" while the "respectable" dislike to associate with "the humbler classes," &c., appear to me to be much less prominent and troublesome in Scotland. A certain amount of this feeling is no doubt now growing up in Glasgow and other towns

where fortunes are being made, and purse pride is becoming introduced (see page 186); but as a general rule these invidious social grudges and discriminations appeared to me to be still wanting to Scotch education. The reasons for this happy condition are of course complex, and a stranger is liable to be led into error when he attempts the analysis of social phenomena. But it appeared to me that sound middle education was both the cause and the effect of it. *The wealth of the Scotch people has not yet out-grown their civilization*, as has been the case in England. It seemed to me that in Scotland I seldom met with those barbarians, those very uncultivated rich or substantial people, whom one sees every summer lounging at the Welsh and North country sea-side towns, or hurrying through the Continent. The average middle Scotchman has more humanity and refinement than the average middle Englishman. Education has been more generally diffused; riches have been less rapidly and largely accumulated; and as a consequence these circumstances have again reacted on education; have caused the middle classes to value it more generally than those in England do; and have prevented the creation of that gulf which exists between men of cultivation and the middle classes in England, the existence of which all thoughtful persons, who have had a superior education, must have felt and deplored.

Causes of this.

The wealth of the Scotch people has not outgrown their civilization.

The same social causes, combined with the existence of a better system of primary education than any we have hitherto had in England, have prevented the opening of a gulf between the middle and labouring classes. In England it is not astonishing, though it is deplorable, that school boys should be divided into castes, and that "a select school" should be the secret wish of parents' hearts. The reason why the private adventurer in England, who advertises—"a select boarding school, in which "only a few young gentlemen are received on the most moderate "terms, without extras, including washing and pew rent, and "where the utmost attention is paid to gentlemanly deportment," —is sure to succeed is, that the middle classes in this country, in spite of their wealth and power, are conscious of the gulf which is fixed between them and the cultivated, and have a vague but intense aspiration that it should be bridged; but they are not yet sufficiently civilized to make the necessary efforts or sacrifices for their object. They would like to have culture, but they would like to have it cheaply and quickly; and they have no intention that the education of their children should interfere with their own pursuits and enjoyments. The master of a grammar school which stands in a town of nearly 30,000 inhabitants,—in which the fees are eight guineas per annum for the upper, and four guineas for the lower school, and in which Latin, Greek, writing, and arithmetic are taught for nothing, while in return for the fees, religious instruction, English history, geography, book-keeping, natural philosophy, French, German, and mathematics are taught; which has an endowment of 500*l.* a year; which is efficiently conducted; and in which there were (accord-

ing to the last Parliamentary Return) not 40 boys in average attendance;—told me that there are men living near the school with fortunes of from three to twenty thousand a year who have sons in the school, who have very few burdens on their incomes, and who never deny themselves any luxury, but who give more trouble about the fees than the poorest professional men, and often complain of the expense of their sons' education. When I told these things to Scotch schoolmasters they seemed to them incredible. No such thing as that could happen in Scotland. The middle classes have generally too much appreciation of the value of education, and as I have shown (pages 15, 16) are too willing to pay a reasonable price to be guilty of such short-sighted selfishness.

The mixture of social classes in Scotch burgh schools is not so general as it formerly was; and it is not quite universal.

Although the mixture of the social classes on the benches of a Scotch burgh school was greater than I expected to find it, yet I was told that it is less universal now than it was formerly. And in one respect my experience shows that an exception must be made to the universality of this mixture. I found very few, *if any*, children of the highest families, of the oldest large landed proprietors, or of the wealthiest professional men, in the burgh schools. The sons of these persons mostly come to England for their education; and are to be found at Eton, Harrow, Rugby, and Oxford or Cambridge. The first class *gentry* of Scotland do not now, as they did formerly, educate their sons in the high schools and universities of Edinburgh and Aberdeen. Those schools are chiefly (if not entirely) filled with boys who leave them at the age of 16; those universities are (chiefly, though not entirely,) occupied in teaching lads between the ages of 15 and 19. If older scholars than these are found in universities or schools, it is generally because they have been neglected and are backward, *not* because they are pushing on into a superior education. Indeed it may *almost* (though not *quite*) literally be said, that there is no "superior education" in the English sense in Scotland, and that the Scotch come to England for it. The principal reason no doubt for this fact is the greater wealth of England, which has enabled this country both to create and to maintain a high standard of superior education, whereas the comparative poverty of Scotland has tended to shorten the period which the majority of men can devote to unremunerative toil, has lessened the amount of educational endowments, and of other inducements to long protracted study, and has necessitated the shortening of the period of general education. For the maintenance in any country of superior education (that is, education continued up to the age of 24 or 25) there are required, in the first place, a large rich or fairly wealthy class who can afford to continue unremunerative work for so many years and to pay the high prices which the scarcity of able teachers will necessitate; and, in the second place, high rewards, to induce poor men to follow it up; particularly in these days when large fortunes may be made in commercial enterprise by shrewd men, who are quite innocent of classics or mathematics. Oxford, Eton, and Rugby are made

The highest gentry of Scotland do not send their sons to the burgh schools, but to England.

Scotch education is chiefly secondary.

The reason of this is the comparative poverty of Scotland;

up of these two classes; first, the poorer men who set the intellectual tone, and fix the intellectual standard of the education, and who are aiming at scholarships, exhibitions, fellowships, and livings; and, secondly, the wealthier, who constitute intellectually the rank and file of the great public schools and universities. The prizes which are to be got by those who succeed in superior education in England are very great; far more numerous and valuable, even in proportion to the population, than those which Scotland can offer. Scotland is a comparatively poor country. There has not been that accumulation of wealth in private hands, or for the benefit of institutions, which is found in England. Hence, there is not in Scotland such a large class of those who can afford superior education; and consequently the education given by the great Scotch public institutions has become of a middle or secondary kind, and superior education has not been much studied in the country, or at least not on such a scale, or with such advantages, as in England. This again, naturally, has influenced the customs of that comparatively small class who in Scotland do require superior education. To a certain extent no doubt they could find it in the Scotch universities. The professors are, and have been, many of them, men of more than Scottish celebrity; and in some branches, such as physics and metaphysics, the Scotch lecture rooms have been second to none. But notwithstanding this, the comparative youth and poverty of Scotch students, and the mode in which the professors are paid, prevent the standard of study from being so high as it is in the *best colleges* of Oxford and Cambridge, and while rendering the Scotch universities essentially popular and national institutions, cause them to be less suitable to the wants of a wealthy and highly refined class. Indeed, though I could not fail to remark the stimulating effect which the universities have upon the burgh schools in Scotland, yet I frequently heard complaints from teachers of the low standard of attainments required in the students by the professors in their lecture rooms. At one burgh school where the mathematics were particularly good, the rector, whose son, a very promising scholar, was studying in one of the universities, complained that he was absolutely retarded by the want of high reading in the lecture room, and that he always found him gone back in mathematics, though advanced in some other subjects, at the end of an university session; and further evidence to the same effect will be found hereafter in the appendices. This actual non-existence (in any considerable degree) of superior education in Scotland is one of the many reasons why those who can afford it prefer to send their sons to the English public schools and universities. Another reason is the desire to free their children from the Scotch accent, which is considered provincial, and to get rid of which, as I have myself observed, is a great object of anxiety with young Scotchmen who expect to live in the best society.

which causes the number of persons seeking a superior education to be much smaller than in England;

and, consequently, has almost extinguished superior education in Scotland.

Hence the upper classes of Scotland are obliged to come to England for it.

They also desire to acquire the English accent.

For these reasons, and others which need not here be noticed, there are very few, if any, country gentlemen's sons in the burgh

Hence there are not many sons of landed

proprietors and wealthy professional men in the Scotch burgh schools.

schools. It will be seen by reference to the tables in Appendices I.–VII., pages 73, 93, 111, 126, 138, 151, 159, 166, that all the nine burgh schools which I visited, except Inverness Academy, claim to have a certain though a small proportion of such boys on their rolls; but it is very much to be questioned how far those so-called "landed proprietors" correspond to our notion of "country gentlemen;" whether, in fact, any of them are what we should call "squires." The Scotch fondness for landed investments is well known, and it is not unlikely that many of these so-called "landed proprietors" are retired tradesmen, or others who have a few acres of land among their investments, and belong, as a matter of fact, rather to the middle than the upper classes of society. In the case, for example, of Glasgow High School (see page 126) it is more than doubtful whether most of the persons represented by the Janitor as "landed proprietors" are not of this middle class. The respect which attaches in Scotland to landownership renders all functionaries anxious to prove that there are members of the landowning class in their schools. In the case of Aberdeen Grammar School perhaps it is otherwise,

And the children who attend them are not *above* the middle class.

but on the whole it may most strictly be said that the children attending these schools do not rank above a genuine middle class. But when this exception has once been made it may fairly be said that all other classes are represented in the burgh schools. A

But, with this exception, the mixture of classes is complete.

glance at the tables already mentioned (pages 73, 94, 111, 126, 138, 151,) will show how surprising this mixture is. Where, for example, in England could such a blending of social classes in school be found as that in Aberdeen Grammar School? In the appendix on that school (page 73), I have endeavoured to call attention to this fact, and to point out some of the causes of it; and I shall not here dwell any longer on this most interesting feature of these schools. I am quite aware that whatever we in the south may think of the desirability of such intermixture of classes in our schools, it is at present an impossibility in England. Social causes, at which I have already hinted, render it impossible; and even if these ceased to exist, a radical change in the mode of managing our grammar schools would be necessary before labouring, artizan, and mercantile classes could combine, as they do in Scotland, to send their sons (*and daughters*) to them. It

Causes which make the burgh schools popular with the lower as well as with the middle classes.

must not be forgotten how closely this popularity of the schools with the poorer as well as the richer classes in Scotland depends on the fact of their being *day schools;* on the fact of their having (generally) no forced curriculum, but allowing each parent to choose his own subjects of instruction; on the care with which a due share of honour and attention is given to science and modern subjects, as well as to the classics;* and on the impartial energy

* The appearance of neglect of modern subjects, and of a too exclusive attention to classics, seems almost invariably to make a burgh school unpopular and unsuccessful. See Appendix III., pages 114–118, and compare page 164. On the other hand, a due attention to modern subjects, especially arithmetic, seems to give a teacher so much hold over his pupils and their parents that he can make them follow any course of instruction suggested by him. Compare pages 140, 212–214. As to the popularity of some of the burgh schools, and the efforts made by scholars to attend them, see pages 94, 138, 151, 175, 207.

and active sense of responsibility to all parents, which is created in the masters by the want of endowments and their dependence on fees. No doubt I have, in my short tour, failed to apprehend some of the causes which have tended to produce this interesting result; but of the actual result at least there can be no doubt. Scotch burgh schools, while they are essentially and emphatically schools of the middle class, are yet so managed that the poorer class is not shut out from them, but shares to some extent the benefit of their influence. In this respect they seemed to me to fulfil most singularly the functions which, if I am not mistaken, the founders of our English grammar schools intended them to perform. (See my Report on Secondary Education in London, page 260).

The age at which scholars go to and leave the Scotch burgh schools.

(ii.) My object in discussing the social condition of the scholars in these schools is solely that I may ascertain how far the instruction given in them is suitable to the scholars who attend them, and may thus be able, in accordance with my instructions, to report with fidelity and precision on "the quality" of the education afforded by them. For this purpose it is also necessary to observe at what age the scholars go to these schools, and how long they stay in them.

In order properly to understand this part of the subject it is necessary to recognize clearly that many of these burgh schools discharge two functions for their middle-class pupils, viz., the function of the primary as well as that of the secondary school. Some of them indeed, as Edinburgh High School and Aberdeen Grammar School, are almost entirely secondary schools; but others, as Ayr Academy and Hamilton Academy, are both primary and secondary, lower and high, schools; or, as our English ancestors would have said, they are at once both petty schools and grammar schools. In those burgh schools which, like Edinburgh High School, perform the work of secondary education only, the length of stay of the pupils is of course shorter than it is in those schools, which, like Ayr Academy, offer an elementary education as well. It is necessary that the reason of this difference in the length of the stay in different schools should be clearly understood. It proceeds from some of the schools combining two functions, and thus undertaking the education of the pupil from an earlier stage than others, and not from any real difference or uncertainty as to the duration of secondary education in Scotland; for, as a matter of fact, the Scotch seem to have very precise theories as to the age at which primary and secondary education should commence, and the length of time each should last, and to carry those theories into practice with much exactness. The Scotch theory appears to be that primary public education should begin with a boy about the age of six or seven years, and last four years, that is, till he is 10 or 11 years old; that secondary public or high school education should then begin, and last five years, that is, till the boy is 15 or 16 years old. The subjects of the primary or preparatory education are what are called the English subjects, *i.e.*, religious knowledge, reading, spelling, writing, dic-

Some of these Scotch burgh schools discharge the functions of both primary and secondary schools.

Those which undertake primary as well as secondary education receive their scholars as young as six or seven years, and con-

tinue that primary education for about four years.

tation, geography, history, English grammar, arithmetic, &c.; and the order pursued with regard to teaching them is much the same as in England, except that the Scotch do not generally begin arithmetic at so early an age as we do in our English primary schools. Formerly almost the only subject of high school or grammar school education was in Scotland (as in England) the classics. This is no longer the case, though in some of the burgh schools (such as Aberdeen Grammar School and Edinburgh High School) the classics still form the principal branch of secondary education, and the only one to which the highest importance is attached. In all the burgh schools, however, the classics continue to form a characteristic feature of secondary or high school education. The high school education begins with the study of Latin at about the age of 11 years, and is continued for four years under one or more of the assistant masters of the school. In the third year (generally) that is when the pupil is about 13 years old the study of Greek is commenced, and at the end of the fourth year the pupil is passed over from the assistant masters to the Rector or head master, with whom he completes his school career, at about the age of 15 or 16. This five years' course represents the traditional and almost universal duration of burgh school education proper, as distinct from the primary or preparatory course. In Edinburgh High School indeed a sixth year is added, allowing two years instead of one to the Rector's class; but I much doubt whether boys often avail themselves of this opportunity (see Appendix III., page 99). At other burgh schools, such as Aberdeen Grammar School, the same attempt has been made without success (see Appendix I., page 68). It may, indeed, be taken for granted that, as a general rule, the curriculum of Scotch secondary education is one which extends over five years; four of which are spent under an assistant (generally the same) master, and one under the Rector; and that five years' study of Latin, with a three years' study of Greek, are the distinctive *linguistic* features of the curriculum. In some of the burgh schools, as has been already hinted (such as Edinburgh High School and Aberdeen Grammar School), this, or a similar curriculum, is enforced. In others (as in Inverness Academy, pages 147–150) it is suggested and encouraged by a favourable arrangement of fees, but not enforced. In others (as in Glasgow High School) there is no organization or co-operation such as even to suggest and encourage a curriculum. In these latter cases a boy may of course remain for several years a pupil of the burgh school without having learned any Latin at all. But in cases where a curriculum is enforced, *or encouraged*, it will be found that boys go through the course as nearly as possible at the ages above defined. Of course there will be cases of precocious, as also of neglected or sickly, children, which will create some variation; but as a general rule the school age is wonderfully uniform. (An exception has been noticed in Appendix I., page 74; see also Appendix IV., page 128). One reason of this remarkable uniformity is the Scotch system of promotion, which is quite different

Secondary education begins at about eleven years of age, and those schools which only undertake this part of education do not receive their pupils till they are of that age.

The High School course lasts five years, till a boy is about 16.

And this is the age at which boys generally leave the Scotch burgh schools.

Remarkable uniformity of the age at which boys enter and leave the burgh schools.

Partly caused by the peculiar Scotch system of promotion.

from the methods now used in English public schools, and is worth a few minutes' consideration. In Appendices I., III., and IV., (pages 66, 99, 127,) will be found more examples of this peculiar system of promotion, as practised in the burgh schools of Aberdeen and Edinburgh, and in the classical department of the burgh school of Glasgow. The general character of the system may be briefly described thus:—The course being calculated to last five years, there are five classes, the fifth being the highest, the first the lowest. The fifth year's class is taken by the Rector, who always teaches that class, and thus receives a new set of pupils every year. But the other four classes are taken by the four masters in succession, each master keeping the same boys as his pupils throughout the four years, carrying them through from the first to the fourth class, and then, if they remain at school, handing them over to the Rector. Thus, supposing that in 1866 there are in a given school a Rector and four masters, A., B., C., D., and that they happen in that year to be taking the several classes thus:—

What this system of promotion is.

Description of the system.

1st year's class	- Mr. A.	4th year's class	- Mr. D.
2nd „ „	- Mr. B.	5th „ „	- Rector.
3rd „ „	- Mr. C.		

Then in 1867 the order will be thus:—

1st year's class	- Mr. D.	4th year's class	- Mr. C.
2nd „ „	- Mr. A.	5th „ „	- Rector.
3rd „ „	- Mr. B.		

In 1868 Mr. A. will be teaching the third year's class, having with him the same boys as those with whom he opened the first year's class in 1866; in 1869 he will carry those boys into the fourth year's class, and at the end of that year will hand them over to the rector, with whom they will complete their curriculum. Thus each master passes through with the same pupils from the beginning to near the end of the course, the final finish being given by the Rector. And thus, also, as a necessary consequence, every boy is promoted at the end of each year into a higher class, whatever be the progress he has made, and whether he be idle or diligent finds himself in the fifth or highest class, as a matter of course, at the end of the four years. Owing to the want of a rector in the classical department of the Glasgow High School, and there being only two classical masters, this programme is not exactly followed there (see page 120); but the principle is the same as regards both masters and pupils. The masters rotate, and the boys are all promoted every year.*

It is a system of promotion by time, instead of by selection.

It is obvious that this system may be contemplated from two aspects, viz., that of its effects on the masters, and that of its influence on the boys. I desire at present to consider briefly whether the system of *promotion by time* (as it may be called) is a

Consideration of the effects of the Scotch system, and contrast of it with the English system.

* In some burgh schools, such as Stirling High School and Dumfries Academy, the number of scholars studying classics is so small in proportion to the numbers in the other departments, that only one master, with or without an assistant, is required for the classical department. In such cases the promotion is made by years, but the same teacher conducts the instruction of all the years. In the Educational Hospitals, where the number of scholars is small, and they are all boarders, the English custom of promotion is followed. (See page 180.)

good one as regards the progress and character of the boys, and to contrast its effects on them with the effects produced in our English public middle schools by the system of *promotion by selection*. In an English public school promotions are made by competitive examination, or in accordance with the results obtained in marks given for work done during the past term, or by a combination of the two considerations. As this system is carried out throughout the whole school, and as the ultimate aim and end of the struggle is to obtain a place in a comparatively small and select class at the top of the school, it is certain that a large number of the pupils in the body of the school never can reach that position; and consequently the tendency is to narrow the number of those who can be promoted from one class to another, as one proceeds higher in the schools, and generally to keep the number of those who can be promoted less than the number of those who cannot be, but must remain stationary. The school in fact as regards its system of promotion may be regarded as a lake, which has a very narrow drainage at the lower end, but which is being constantly supplied with large bodies of water at the upper end. The result is, that there will always be a slight stream flowing through it, but that the great body of the water will remain stagnant in the basin of the lake until released by overflowing or evaporation. So in a large English school there is a small select stream of intellect or diligence which struggles through towards the highest class, but the bulk of the pupils remain more or less stationary until they overflow or evaporate into the army, the law, ministry, trade, the civil service, or other occupations. The advantages secured by this system are of course the high standard which is rendered possible at the top of the school by the constant competition among those who do choose to work and the stimulus which is afforded to them by such competition. The disadvantages are the mental stagnation of a large body of the pupils, especially near the centre of the school, who "fall out of the running," lose the little interest they ever had in intellectual excellence, and either give their minds to cricket or something worse. So strongly has the pressure of this evil been felt by our best English public schoolmasters that they have invented different plans for counteracting it, for drawing off the stagnant waters of the school, and restoring a healthy current of circulation. I have heard of one case in which it was the master's custom when a boy had remained a very long time in one form, more through idleness than inability, simultaneously to flog and promote him; the promotion being designed to give him a new start and to restore circulation to the system of the school, and the flogging, as a mark that he was not promoted *honoris causâ*. But the plan adopted by our best public schools is now, I believe, that which in my Report on Secondary Education in London I have called the "Removal System," and the reasons for which I have endeavoured there to explain (see page 283). Under our English system some such contrivance is essential, though no doubt whatever plan be pursued the evil

must remain not inconsiderable; and if it so happen that the middle of the school be under a bad teacher, or the promotions injudiciously or partially made, the evil may become very serious. This evil the Scotch method of course avoids. Under this system there cannot occur any cases of dull boys despairing of promotion, and losing all interest in study; or of clever but idle boys mingling with and corrupting their juniors. Boys of the same or nearly the same age are kept continuously together. The whole stream is kept constantly moving forward, and no stagnation is permitted; but then there are, no doubt, other disadvantages which the English system may be thought to avoid. In a school where the Scotch system is followed it is almost impossible that the standard should be so high as in an English school. The dull and idle boys, of whom there must always be some in every school, are moved forward with the diligent and able, and unless the master chooses to neglect them altogether, they must drag down the standard of attainments and progress in the class to a lower general level than that which it might other wise attain. This is the evil to which the late Rector of Edinburgh High School refers in the words quoted in Appendix III., page 99.* I noticed when examining or listening to the teaching in the classical course of one or two Scotch schools, that the classes seemed to be composed of three parts. About three-eighths would consist of very active, well-informed, intelligent boys; another three-eighths would consist of fair average scholars, and a remaining one-fourth would consist of very inferior pupils, apparently much below the rest of the class both in ability and knowledge; and masters several times complained to me that this "residuum" dragged down the intellectual level and retarded the progress of the whole class. This may very possibly be one evil result of the Scotch method of promotion by time, though in the case of Aberdeen Grammar School I am inclined to doubt whether the "presentation bursaries" are not chiefly responsible for it (see page 77). It may also fairly be questioned whether the existence of a "residuum" in every class (except perhaps the highest) is not an inseparable accident of all public school education, and one which is felt almost as much in most English schools as in these Scotch schools. In the highest class of a well-managed English public school the existence of any "residuum" should, perhaps, be avoided, and as I have already said, it is in this particular that the superiority of the English system comes out. The standard of the highest class, the *maximum* of attainments, ought to be higher in a school conducted on the English system than in one conducted on the Scotch system, because the highest class ought to be select, the issue of a kind of struggle for existence, which ought to secure none but good specimens for the result. Perhaps it would hardly be fair to describe the English system as one which sacrifices the many for the benefit of a few; but at all

* Compare also the opinions of the Rector of Edinburgh Academy; Appendix X., page 195.

events the Scotch system may be described as one which sacrifices the particular and special cultivation of the few for the general benefit of the many. It is a system which looks more to the general level of attainment than to the heights which may be reached in individual talent, which desires more earnestly the avoidance of any cases of complete failure, than the glory of singular success. On this ground it is one which seems to me very worthy of the consideration of the Commissioners, though with the present tone of English middle class society, and the present constitution of English grammar schools, I do not urge its introduction into this country; for it must not be forgotten that some of the evils which might be supposed to flow from such a system, are in a great measure counteracted in Scotland by the custom of marking and place-taking which is in use throughout the burgh schools which I visited, and by the remarkable energy and activity of the masters, backed as it is by the zeal for the advancement of their children which exists among the parents, and their intelligent interest in their children's progress (see pages 53–54). When such a feeling of desire for culture, and of willingness to make sacrifices for it, shall appear among our shopkeepers and farmers it may be time to introduce the system above described.

But whatever may be thought of the influence of this system on the attainments and character of the scholars, its effect in producing uniformity of age among them, and in keeping them the same length of time in school is undeniable. The pupils of those burgh schools which have a compulsory curriculum, such as Edinburgh High School and Aberdeen Grammar School, and a large number also of the pupils of those which have only an optional curriculum, continue about five years in the secondary course of the school; for I am at present not regarding the elementary or preparatory part of the education given in some of the burgh schools, but only the secondary part. The age at which this secondary or high school education is generally begun is about 10 or 11 years (see Dr. Steven's History of the High School of Edinburgh, page 274), so that the scholar who has begun at this normal age comes to the end of his burgh school life when he is about 15 or 16, or at the utmost 17 years old. Many are of course drawn off, as in England, to other occupations before the age of 16, and do not complete the course. This is especially the case in a town like Glasgow, where the temptations of commercial life are very great (see page 128), and in all schools the completion of the five years' course by a good number of pupils depends, of course, largely on the energy and popularity of the teachers, and the fame of the rector. But I very seldom found any boys who had been more than five years in these schools, or aged more than 16 years. When boys of greater age than this are found in the schools it is generally because they were at one time neglected or sickly, or, from some other causes, have been thrown backward, and *not* because they are staying on in order to read higher than the others. If a boy has begun Latin at the usual age and has been tolerably regular in attendance, he

Duration of secondary education in burgh schools.

will almost certainly leave the school not later than at 16 years of age (see the tables in Appendix I., pages 73, 74, and on pages 116, 139, 152). Thus it will be seen that the scholars in these schools do not continue their school education up to the age which I have assigned as the utmost limit of secondary education, viz., 18 or 19 years (see pages 6–7), and these schools may therefore be described generally as *middle schools of the second grade.* It is true that I have reckoned Aberdeen Grammar School and Edinburgh High School as schools of the first grade, and have compared them with such schools in London (see Appendix I. and III., pages 75, 113). I have done so because I found some scholars in them of 18 years and even older. But I feel that after all it is hardly fair to make this comparison, because in almost all cases these older pupils are some who have been neglected, or who being the children of very poor parents, have begun their secondary education abnormally late, or who in other respects do not represent the normal results of the ordinary teaching of the school. The results of that teaching in due fairness should be sought for in the boys who are in the fifth year's class, having been about five years in the school, and who having begun their secondary education at the ordinary period, are leaving school at the age of 16 years, so that the secondary education of boys, as exhibited in the burgh schools of Scotland, may fairly be said to begin at the age of 10–11, and to end at the age of 16, having lasted about five years. This cannot be regarded as a long period; and indeed its shortness was frequently lamented to me by teachers.*

Influence of the Scotch Universities in shortening burgh school education.

The influence of the universities is the principal cause why boys do not continue their education in these burgh schools of Scotland beyond the age of 16; and as no correct representation of the character of Scotch secondary education can be given without some allusion to the part which the universities play in it, I find it necessary to say a few words on this interesting question. Among the plans which have been proposed for the regeneration of the English grammar schools, the Commissioners have no doubt had their attention directed to the question whether the establishment in some of the leading provincial towns of local universities, of a more popular character than those of Oxford and Cambridge, might not have a good influence. Some light may perhaps be thrown on this question by a consideration of the influence exercised by the Scotch Universities on the burgh schools.

Leading characteristics of the Scotch Universities.

The principal characteristics of the Scotch Universities are of course well known to the Commissioners, and I shall not attempt here to give any general account of them. For my purpose it is sufficient to remark that there are four Scottish Universities, two of which are situated in the south, one in the centre; and

* Compare the length of the course, and the age of the scholars, at Glasgow Academy, page 187. They appear to be much the same as at the burgh schools. At Edinburgh Academy the course is longer, being designed to prepare scholars for the English as well as the Scottish universities. (See pages 192, 199.)

another in the north of Scotland ; that these institutions are therefore, in comparison with the size and population of the country, much more *local*, less centralized in their character, and more *distributed* among the population than those of England; that they are very *popular* and open in their constitution, since they require no collegiate residence from their students, and impose no admission or matriculation examination on them, thus avoiding all religious difficulties and the exclusion of struggling and ignorant poverty from their class rooms ; and that they offer an extremely cheap instruction, which they are enabled to do partly by teaching their students professionally in very large classes, and partly by carrying on those classes for only half the year, from November to April, thus leaving the students free to spend the remainder of the half year as they please. These are the characteristics of the Scotch Universities, which must be remembered in order to appreciate their influence on the burgh schools ; and these are, I think, all that I need mention here.

and the effect which these characteristics have upon the burgh schools.

One necessary effect of the nature of these institutions is the *shortening of school life in Scotland.* Instruction in classics and mathematics, at least as elementary as that given in the upper classes of the burgh schools, may be obtained in the universities; and for reasons already mentioned (page 8), lads who have passed through the usual five years' course (see page 24) in school, would always rather go on to the university than spend another year with the Rector. Thus it is that efforts to add another year to the usual length of burgh school life are always frustrated (see Appendix I., page 68 ; and Appendix III., page 99).

The universities shorten school life.

There is indeed no reason why lads should stay on at the burgh schools when they can go to those great finishing schools, the universities, and learn the same subjects from more distinguished teachers, with greater freedom, and often at less expense ; and where they may besides be actually making some practical progress on their road to the professions of medicine or the ministry. Boys of sixteen who stayed on at school, would find themselves rather singular ; but if they go to the universities at that age they find students there who are younger than they. Thus, for example, Heriot's Hospital sends scholars of the age of fifteen to Edinburgh University.* (See Appendix X., pages 181–205.) Bitter complaints were made to me by many schoolmasters of the injury which, as they said, is done to schools by the universities, in lowering the age of their scholars. It is no doubt most trying to these able teachers to have their scholars taken from them just at the age when they begin to be most promising and interesting ; and there can be no doubt that by admitting mere

by admitting mere boys to their classes ;

* It may perhaps be wondered how the Professor contrives to carry on to any degree of proficiency a very large class of first year students, the members of which differ so greatly in age and attainments. The way in which it is managed is this. The Professor, when his new pupils assemble, examines them ; and those who are below a certain minimum standard he hands over to an assistant to be drilled in the elements until they are fit to join his own class. The assistant teaches in a class-room adjoining the Professor's lecture room, and thus the first year's class may practically be regarded as a good-sized day school taught by a master and usher.

boys to their classes, the universities inflict a heavy blow on the schools, and sacrifice the claim to be considered seminaries of exclusively superior education like Oxford and Cambridge. But whether on the whole they injure the cause of secondary education by this practice is a different question. Closely allied to this complaint of the burgh schoolmasters against the universities is another, but to my mind, a more serious charge, namely, that by not requiring any admission or matriculation examination, they lower the standard of attainments throughout the Scotch secondary schools. Several obvious examples of this effect were brought under my notice. Thus at one burgh school in an university town, an effort was made to render the promotion from the fourth class into the Rector's class dependent on the candidate passing a minimum examination, and several boys being idle in the fourth year's class were warned that they might be refused promotion, and might be required if their examination was not satisfactory to remain in the fourth class until they had made more progress. Whereupon they left the school, and entered the university. It must be remembered that the Rector's income depends chiefly on the number he has in his class; and the Commissioners will easily perceive what must be the effect on the burgh schools of such a competition with the university. In another burgh school in which the mathematical teaching is particularly good, the Rector informed me that his son, who holds a presentation bursary at the neighbouring university, had read higher in mathematics before he went to the university than he has ever read since; the class not having been able to attain that degree of proficiency; and that he often has students coming to the school during the university vacation in order to carry their reading a little higher than they can during the session under the Professor. I might mention other examples which tend to the same conclusion, that the want of an admission examination at the universities does in general lower the range of classical and mathematical reading at the burgh schools. It is, of course inevitable that as the Scotch Universities are at present constituted, there should be some jealousy between them and the schools. The universities cover so much of the same ground as that occupied by the schools and like them are so pressed by the want of endowment (the professors depending chiefly on their fees), that some jealousy between them is unavoidable (see page 173). In old days indeed matters used to be much worse; the universities actually interfering to narrow by regulation the course of reading at the burgh schools so as to prevent their "encroaching on their "province." Thus in the year 1772, when the celebrated Dr. Adam was rector of the High School, Edinburgh, and had opened a class for the teaching of Greek, and had also added a sixth year's class to the previously existing five years' curriculum, the Senatus Academicus of Edinburgh interfered, and called upon the magistrates and town council, as patrons of both seminaries, to prohibit both the teaching of Greek and the instruction of a sixth class at the High School. Such direct interference is of course now at an end; but there is good reason to fear that

and they lower the standard of attainments in schools, by not requiring any matriculation examination.

indirectly the standard of learning in the burgh schools still continues to be lowered by the influence of the universities.

But, on the other hand, they render important services to the schools.

I have not heard or taken note of any other effects of academical influence on school education in Scotland which can be considered as injurious to the schools; and it remains now to see what services the universities render to the schools, and whether on the whole their influence is more for good or for evil.

They diffuse a desire for knowledge throughout the country;

The intensely national and popular character of the Scotch Universities causes their influence to be felt in every part of that wild and rugged country. In every corner of the kingdom; in the Islands as well as the Highlands; among the shepherds of the Grampians and the fishermen of Argyleshire, as well as among the weavers of Paisley, and the colliers of Ayr and Dumfries, the influence of one or other of the universities is keenly felt, not merely through the connection of their own parochial schoolmasters and the governors of their churches with the universities, but because the cheapness and the elementary character of university instruction renders it accessible to a very large proportion of the population. That love of literature which was aroused at the Reformation in the Scotch people is thus stimulated and revived; the traditional reputation which attaches to the study of a session or two at the university, is kept alive and active as a real cultivating force among the country population; the merest rural school aims at something more than the simple elements of instruction; schools in general, and of course burgh schools among the number, are better attended, on account of the stimulus which the universities give to the desire for knowledge: and the prospect of concluding their education with an university course, and in very many instances of winning a competition bursary, gives a stimulus, a point, and a precision to the labours of the scholars, of which English middle schools sadly feel the want.* To appreciate the value of this influence, it is only necessary to look at the condition of English grammar schools of the second grade, which either from poverty, faults of situation, mismanagement, or the progress of social changes, no longer educate the children of the upper classes. How utterly estranged such schools have become from the universities! As far as they are concerned, the universities might almost cease to exist; the only thing that the universities do for them being perhaps to furnish them with fat and easy passmen as teachers, and friendly classmen as examiners. Indeed, it is often to be questioned whether the Universities of Oxford and Cambridge do not rather injure than benefit the public through the agency of such schools; for in too many instances the master makes a pretence of preparation for the universities a mere excuse for neglect and idleness; always claiming to be preparing pupils for a superior education, which none of them pursue; or to be examining two or three miserable specimens for a scholarship for which they never go up; and meantime neglecting the bulk of his scholars, or handing them over to an ignorant usher, whose business is to teach "English" and mind the

and cause schools to be better attended in consequence.

They give a point to the work of Scotch middle scholars.

* See pages 73, 161, 183, and compare page 11.

bedrooms. The intellectual *distance* at which a great English University stands from our middle schools, owing to the very greatness and superiority of the standard which it maintains, prevents its having any influence over them; and there is nothing in England to stimulate such schools, or to give a point to their work. The great public schools, and all those throughout the country, which send a large proportion of their pupils to the universities, are stimulated by the competition for open scholarships and other prizes; and by the very fact that the course of work in which they are preparing their pupils leads up naturally to the work of the college lecture room and culminates there. So, again, a large number of the elementary schools are stimulated by government inspection and grants of public money. But for the middle schools of the second grade, the most thoroughly *middle* of all our schools, there is no such stimulus or encouragement; unless indeed they choose (which the worst of them do not) to avail themselves of the local examinations, which is after all but a very imperfect and inadequate provision. From this want of a definite aim or destiny the Scotch Universities preserve their middle schools, playing to them the very part which Oxford and Cambridge play to our superior schools; acting, in fact (to borrow a term from girl's education), as great "finishing schools" to them. The popularity and penetrating influence of these universities is of course due to social and national causes, as well as to their own organization. The necessity of passing through an university course as the only road to the ministry in the Church; the popularity of that democratic church in the middle and lower classes, and the desire to rise to eminence in her service; the opening to fame and distinction offered by the medical faculty; the European celebrity of some of the professors, and the pride felt in studying under such men; the absence of religious clogs, and of all the unpleasant domestic friction which accompanies the collegiate system; the freedom, and therefore cheapness of residence; the short and continuous sessions (six months out of the twelve); the low fees; the bursaries; and above all, the traditional love of knowledge and horror of barbarism which the Scotch possess, all combine to bring them in students from every corner of Scotland. Again, it is well known to those who have studied the habits of the farmers and similar classes in England, that, though the young lads of their families are taken away from the school at about the age of 16, it does not at all follow that upon leaving school they go at once into any business or profession. On the contrary, the general practice is for them to spend a year or two hanging about at home, or paying visits; and generally doing very little good to themselves or their neighbours. They have outgrown the little middle schools which they attend, but they have not yet come to man's estate, and there is no place where they can continue their studies with cheapness and dignity. Now a Scotch University largely absorbs this class. If the Scotch lad has time to spare between 15 and 18 years of age, he is at no loss to know where to spend it; and there is something really attractive in the prospect of a short time spent among con-

Causes of the popularity of the Scotch universities.

They cause young men to be studious who would otherwise probably be idle.

genial companions in the educational capital of the district. Moreover, if he has any brains, he may, by going to the University, be not only not much out of pocket, but may actually see his way to earning a little money by his attendance there, and to commencing that independence of his parents which is so desired by a right-minded lad. Incredible as it may seem to English students, Highland lads are known to come up to Aberdeen University on a bursary of 20*l.* a year, and to have something to spare after paying their fees and their lodgings at the end of the six months' session. Such a lad will bring up a bag of oatmeal with him from home, and, by sharing a garret with some equally poor and magnanimous fellow-student, by half-starving himself, by denying himself meat and living on the oatmeal while it lasts, and "tightening his belt" when that is gone, he finds himself at the close of the session actually richer than he was before he got his bursary by several pounds, besides the addition made to his stock of classics and mathematics. Meantime, during the session, his friends have been busily looking out for a tutorship for him in a private family, or an assistantship in some school; and thus he keeps himself during the vacation, still saving, and still accumulating knowledge till November returns, and the university session re-commences. This is no imaginary case. And is it possible not to feel the most profound respect for such a youth, or to fail to perceive how great must be the effect of an university upon a country in which the young will make such sacrifices and such efforts to obtain a share of its benefits?

Efforts made by Scotch lads to attend the universities.

Thus though the universities may perhaps shorten the time spent by pupils at the burgh schools, they probably prolong the period of secondary education, on the whole; and do in every way more good than harm to the schools, as well as to all interested in the instruction of the middle classes.

Again, the universities provide the burgh schools with the means of obtaining *teachers*, at a very reasonable rate, and on the whole much better qualified for the office than the majority of English grammar-school teachers. This is a service to the schools, the value of which can perhaps scarcely be over estimated; but I reserve the consideration of it for the fourth section of this Report (see page 41 *seq.*). No doubt also the universities have done much to preserve the maintenance of the teaching of classics, mathematics, moral sciences, and the more liberal subjects of education in the burgh schools, and to prevent these studies from being entirely swamped by the so-called "useful" subjects of instruction. In these, and in many other less obvious ways, which it will not be necessary here to describe, the universities influence the burgh schools for good. It is not fair to compare them with our English Universities. They do not occupy the same ground, they are not like them in any respect but the name; and, as seminaries of secondary education, it is not desirable that they should become so. Of course I do not for a moment presume to say that there are not a great many improvements which might be made in the Scotch Universities, without destroying their

The universities supply the Scotch secondary schools with good teachers.

nationality, or the influence which they exercise upon secondary education. I wish in this place strictly to limit myself to pointing out how large and, on the whole, how beneficial is that influence; and I think no one who has visited Scotland with the view of inquiring into national education in that country can fail to be struck by the effects of that influence. For this reason, I may here mention incidentally, it does not appear to me that (as regards the education of boys), the newly adopted university "local examinations," which have been lately commenced in Scotland, in imitation of the English plan, are likely to succeed. The scheme was in England started in the hopes that it would supply a very real and very alarming deficiency in our educational system. It was intended to fill up or bridge over the great gulf which previously existed between our secondary schools and our universities, and to bring Oxford and Cambridge once more into communication with the middle classes. Even in England I greatly doubt the success of the plan for boys as it at present stands; and I feel sure at any rate that its inadequacy will soon be more strongly felt than it now seems to be. Still it has been so far a success in this country, that it has contributed something, however little, towards the filling up of the great chasm between the English middle classes and the two ancient universities. But in Scotland no such chasm has ever been formed; the universities were already *en rapport* with the middle schools and middle classes; and I cannot help thinking that the institution of the local examinations in that country has been a mere imitation, and more or less a work of superfluity. I watched the effect of these examinations in one or two schools which had invited them, and I came to the conclusion that as regards the education of boys, they were not of much use. It must be remembered, however, that I am here speaking only of their effect on the education of boys. On the education of girls they probably may have eventually a remarkable influence; and in this respect Edinburgh may be found to have done as good a service to Scotland as that which has been done to England by Cambridge, in initiating a change which may one day cause an entire revolution in the mode of educating women, and may have been the beginning of one of the greatest social improvements of our day.

On the whole it seems to me that the influence of the Scotch Universities on the burgh and other middle schools of Scotland, is very remarkable, and is far more for good than evil. Any particular injuries inflicted on schools are, I think, far outweighed by the benefits conferred on secondary education in general.

III. Character of the buildings and premises of burgh schools.

III. *Character of the Buildings and Premises.*—The influence exercised by the character of the premises in which tuition is conducted upon the physical and mental powers of students is now generally recognised; and it will not be necessary for me to enter into any discussion upon this point, or to dwell upon the evil effects of low ill-ventilated buildings, ill-drained yards, and badly furnished class rooms. Where such things exist, the

quality of the education is sure to be more or less deteriorated. But the Commissioners will perhaps be interested in hearing whether, as far as my brief experience goes, the system whereby the fabrics of the Scotch middle schools are maintained is satisfactory. I have already explained (at page 14) that the burgh, represented by the provost and town council, who are generally styled the patrons of the Burgh school, is concerned mainly in providing suitable premises in which this secondary education may be conducted, in keeping them in tenantable repair, and in discharging the burdens of taxation, &c., which fall upon them; and as a result of this obligation, the patrons have the right to appoint the masters who shall teach in these buildings, to dictate the subjects which shall be taught, and to fix and regulate the scale of fees. I gather from such books as the "History of the High School of Edinburgh," the "History of George Heriot's Hospital" (both by Dr. Steven), the "Life of Andrew Melville," and the like, that the maintenance of a suitable building has always been regarded as one of the first duties of the patrons of burgh schools, and as equal in importance to the duty of selecting good teachers; and if I may assume that the buildings of the nine burgh schools which I visited were fair specimens of the buildings of the burgh schools throughout Scotland, I think they may be considered on the whole at least equal in quality to those of the endowed schools of the first and second grade which I have visited in England, and perhaps somewhat superior; while they are undoubtedly much better than the buildings of those schools of the third grade which I visited in England. In making any comparison between the premises of English endowed schools and these Scotch Burgh schools, some difficulty arises from the fact that the Scotch schools are *all day* schools, whereas the endowed schools which I visited in England are most of them intended as boarding schools; and it must be remembered that I am here leaving the consideration of the boarding part (often the most objectionable) of those English schools out of the question. The buildings of the High School of Edinburgh and of the Grammar School of Aberdeen are excellent, and superior to those of any school which I visited in the London district; the nearest approach to them in goodness being, among endowed day schools, those of the City of London School, and (among proprietary day schools), those of the Philological School in Marylebone. It must, however, be remarked that I saw no buildings in Scotland equal to those of Edinburgh and of Aberdeen, and I must say that they gave me a profound impression of the interest which must be felt by the citizens of these two towns in the education of their boys. No doubt the amount of intelligent effort which a town council bestows on such matters will often depend on the personal ability, activity, and enlightenment of the Lord Provost and other leading councillors. And in the case of Aberdeen, I believe this has been particularly so, and that the city is deeply indebted to the able exertions of the Lord Provost who was in office at the date of my visit. Still,

Comparison of these buildings with those of Grammar schools in England.

after all, though these functionaries are in some respects the rulers, yet in the question of expenditure, they are but the representatives of their fellow citizens; and we may be sure that they would not have made such efforts and sanctioned such expenditure unless they were supported and stimulated by the public feeling among their constituents. The existence of such school buildings as these seems to me in the highest degree creditable to the citizens of these two towns, and to their municipal government; and there can be no better example of the advantage of having some public body responsible for the maintenance of good public school buildings than is afforded by the history of Edinburgh High School and the Grammar School of Aberdeen.

Classification of the buildings of the nine burgh schools into good, fair, and moderate.

In Appendices I.–VII. will be found a detailed account of the premises in which the work of each of those nine burgh schools is conducted; and in the cases of some I have furnished a short account of the mode in which the building was raised, which may be of practical use. On reference to these appendices it will be seen that the buildings of the nine burgh schools may be classed somewhat as follows:—

Good	1. Aberdeen Grammar School. 2. Edinburgh High School.
Fair	1. Ayr Academy. 2. Dumfries Academy. 3. Hamilton Academy. 4. Inverness Academy.
Moderate	1. Glasgow High School. 2. Perth Academy. 3. Stirling High School.

As the defects of the buildings of these three last schools are mentioned in Appendices IV. and VII. I need not here do more than refer to those pages (127, 167, 173).

Can the mangement of secondary schools be safely entrusted to Corporations?

The condition of these premises is, no doubt, due in at least one instance to the want of funds; but in all the three cases it must betoken also a want of interest and zeal on the part of the corporations of these towns in the cause of education. My experience has, I think, scarcely been wide enough to enable me to say whether the corporations of Scotch towns are, on the whole, as patrons of their burgh schools, fairly liberal in respect of the provision and maintenance of the *fabric* of school buildings. Were I to judge by the nine cases which came under my notice I should say that they are; and that such cases as those of Glasgow and Perth are not the rule but the exception. It must however be clear, that unless there be a keen and intelligent interest in the support of good public school education among the town-dwelling middle classes of a country, it would not be safe to commit the provision and maintenance of school buildings to the care of their representatives, a town council elected by a very wide suffrage. No doubt the trustees of grammar schools in England at present represent a high degree of mismanagement or no management; but I think that grammar

That depends upon the general intelligence and interest in education of those whom they represent.

schoolmasters would agree with me in doubting whether, in the present condition of our mercantile population, much good would be got by increasing local influence in the administration of schools.

Simple character of the majority of burgh school buildings.

As regards the buildings of the four schools which are classed above as "fair" the principal thing which struck me was the extreme plainness of their construction. In none of them is there any attempt at architectural effect. A plain block, standing in an open space, and divided into as many oblong rooms as there are separate classes to be taught, is a description which will apply to all of them: and the rooms are, generally, fairly commodious and spacious. All these four schools have been converted from ancient grammar schools into "academies." This is a term which has apparently a peculiar force in Scotland, and seems frequently to imply that at some period a *proprietary* element has been added to the ancient burgh institution.* The object of this proceeding has been generally the revival of the burgh school, which had fallen into a low condition; and especially the furnishing of means for the erection of new buildings; and it seems that this combination of a proprietary with an endowed element in a school is one which has frequently been very successful in Scotland. The case of Ayr academy is an example of this success, as also is that of Inverness academy (See Appendix II., page 83, and Appendix VI., page 144). There is this peculiar advantage in this combination, that while the proprietary principle arouses new interest, creates sympathy among a new class of persons, and calls in a fresh support to the school, the endowment furnishes a solid substratum, on which the institution may rest. Thus, while the proprietary management lasts, and particularly when it is first created, it adds fresh life and vigour to the school; but should it in any way prove a failure, the school is not thereby broken up and destroyed, as a merely proprietary school would be. The burgh school building would remain. The burgh would still have the right to keep that building in repair, and to appoint masters to teach in it; and if those masters were able they would not be wanting in pupils, and in the fees which constitute the main part of a Scotch teacher's income. The case of Hamilton Academy is an example of this. (See Appendix V., page 133). It seems to me that if the principle of a proprietary element in the support and management of schools be approved, it is better to combine it with an existing endowment than to start it alone without such a basis. By this method the peculiar evils of proprietary schools, to which I have alluded in my report on the London Postal District (Part II., page 380) may in a measure be avoided.

Conversion of "Grammar schools" into "Academies" in Scotland, and what is meant thereby.

Advantages of the combination of endowed with proprietary schools.

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* Another view, however, of the meaning of the term "Academy" was given me by a very experienced burgh schoolmaster. He says, "An academy in Scotland means a seminary of learning where all the elementary branches of education are taught by different masters. In Perth it often means in common conversation the class of mathematics, as it was the first offshoot from the original grammar school." At all events it is clear that in the case of burgh schools the title "Academy" implies that the ancient foundation has been remodelled and adapted to modern requirements."

Want, except at the High School of Edinburgh, of school libraries.

One great defect exists in the buildings of all these burgh schools except those of Edinburgh; namely, the want of a school library which may be used by the pupils. In this respect these institutions are no better and no worse than our English grammar schools, among which, I believe, the same defect generally prevails; but, at any rate, the Scotch schools have the excuse of want of funds: an excuse which English grammar schools cannot as a rule, plead. And this is one of the points in which the lack of endowments, however much good it may have worked in some respects, seems to be excessive in Scotland, and to be deplored. There can be no more legitimate use of endowments than for the maintenance of good school buildings, and the furnishing of them with abundance of good maps, books, and other apparatus. And in this respect I do not think that the management of the town councils makes up for the entire lack of endowment.* I fear that the patrons are generally apt to be rather illiberal in regard to the supply of books and apparatus to the teachers; and indeed I believe that in most of the burgh schools the burden of supplying their own apparatus falls, to a great extent on the teachers. This seems to me in every way most undesirable. The teachers are men who can generally ill afford the expense; and I do not think that, as a rule, these schools are quite so well supplied with apparatus as they should be. There are, of course, some exceptions, where the zeal and intelligence of a teacher, combined with the possession of a really good professional income, have caused him to furnish himself with very satisfactory apparatus (see Appendix IV., page 131), but it is of course uncertain in such cases how long the school will continue to be so supplied; as the apparatus is private property, and will leave the school when its owner ceases to hold office there. Some instances also of liberality in this matter on the part of the patrons to very popular or able teachers came under my notice (see Appendix VII., 167), but as a general rule the patrons did not appear to me to be sufficiently liberal in this respect. I gather, however, that the patrons of Edinburgh High School have furnished an exception to this general rule, and have been always very liberal in allowing grants for requisite apparatus: (see App. III. page 113;) and the same may perhaps may be said of Inverness Academy. The library of Edinburgh High School is an admirable feature of that institution. It was founded in 1658 by the provost and bailies of the city on the recommendation of the Rector of that day; and now contains, I believe, about 7,000 volumes, including the best Greek and Latin lexicons, the best editions of the classics, several encyclopædias, and a valuable collection of antiquarian, historical, and geographical authors, besides a number of lighter works of fiction. It is open to all teachers and pupils of the high school. Several young lads and boys, in different parts of Scot-

In such respects the want of endowment is strongly felt in Scotland.

The patrons of the burgh schools are not generally sufficiently liberal in supplying books and apparatus.

The Library of the High School of Edinburgh.

* The contrast, in respect of furniture, fixtures, and apparatus, between the burgh school of Perth (except the rector's classroom, which is well supplied,) and the "Sharp Institution" in the same town, is remarkable. The institution is an endowed school combining primary with lower secondary education (see pages 208–210).

land, whom I questioned as to what text books they used, told me that they were unable to afford the expense of a Liddell and Scott's Greek lexicon. The Commissioners may imagine what a luxury this library must be to such a poor student coming up from the Highlands, or the Borders, to study in the High School; how he would revel in the new world which it would open to him, and how much his progress in knowledge would be accelerated.*

Want of means of recreation for the scholars in the burgh schools.

One more point in regard to the premises of these Scotch schools seems to me worthy of notice, and of contrast with English schools. Any English visitor to these schools must, I think, be struck by the absence of all means of recreation for the boys during the intervals of recess from schoolwork. Not one of these nine burgh schools has a grass playground; not one has a fives court or a racquet court; not one has even a gymnasium or ground fitted up with apparatus for physical training. With the exception of drill in one or two of them (such as Inverness Academy), and of the instruction given at Edinburgh High School in fencing, there is not in any of these schools, so far as I am aware, any provision for physical education. To an Englishman, accustomed to see a cricket ground, a fives court, or at all events a gymnasium, as part of the premises of a public school, this entire absence of the means of "play" at the Scotch schools is certainly striking. Throughout my tour in Scotland I never, except twice, at Dollar Academy and at Heriot's Hospital, saw a Scotch scholar playing at cricket. A fives court or racquet court I never saw. One reason no doubt of this is, that these schools are day schools, the teachers of which are only concerned with the boys in class. The care of the scholars out of school hours, and their amusements, are no concern of the school authorities or the school teachers, and the presence of boys about the school grounds out of school hours is no doubt discouraged, as it would require watchfulness to prevent damage to school property (*see* Appendix I., p. 82).

No attention paid to physical education.

Still, there must be intervals or breaks in the schoolwork of the day, during which the boys must require a little rest; and it might be supposed that they would be none the worse for a good game of fives or cricket during such intervals. Perhaps, however, it may be difficult, if such amusements are provided, to prevent many boys from transferring to their games that allegiance which is due to their studies; and, on the whole, I am not sure that the Scotch are not right in dissociating the notion of play from that of school, and requiring their scholars, if they want amusement, to go elsewhere for it.

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* Dr. Steven, in his history of the High School of Edinburgh, page 132, mentions that the signatures in the library catalogue of Henry Brougham, Francis Jeffrey, Henry Cockburn, and others, show how largely these distinguished men used to avail themselves of the library when they were scholars in the High School; and that it appears, by the catalogue, "that Sir Walter Scott there perused "Langhorne's Plutarch, Robertson's History of Scotland, Goldsmith's Greece, "Goldsmith's England, The World Displayed, the Annual Register, Sully's "Memoirs, and all the Voyages and Travels of which the library could, at that "time boast."

In this view I shall probably have the sympathy of some, at least, among our English public schoolmasters and tutors, who must, like myself, have felt the difficulty of getting any Latin and Greek to stay in the heads of boys besotted with cricket. I remember a pupil of mine at Oxford, who might have distinguished himself in the schools, telling me that he feared, if he read the minimum number of hours which I thought essential to success, he should miss being in the University Eleven. Of course I had no chance against the great idol. He *was* in the Eleven, and in the third class. Many instances of a similar kind must be known to men who have been at a public school or University, either as scholars or teachers. And I am not sure that the Scotch, in going to the opposite extreme, have the wrong altogether on their side. It must be remembered that there are means of recreation for the scholars in many of these towns away from the school.

IV. *The Quality of the Teaching.*—Under this head I propose to consider (i.) what are the qualifications of these Scotch teachers; that is to say their educational status, and what preparation they have had for the office of teacher; and (ii.) what is their method of instruction; and to compare in these respects the quality of the education in Scotch burgh schools with that in the English grammar schools which I visited.

IV. The quality of the teaching.

This question involves two considerations.

(i.) In the fourth section of each of the Appendices I. to VII. will be found a detailed account of the educational status and qualifications of the teachers in several burgh schools. I have already stated that the right of appointing the masters of the burgh schools belongs to the *patrons* or magistrates of the burgh, who maintain the building, and generally also make annual grants towards its maintenance. Most burgh schools have a head master, who is generally called the *rector*, and other subordinate teachers, who are generally called the *masters*. The authority of the rector is different in different schools; but in no school have I found it equal to that of an English head master. An English head master has usually the power of appointing most, if not all, of his assistants, and of regulating to a great extent the course of study and the arrangements of the school over which he presides (*see* my Report on the London District, pages 497–498). But in no school that I visited in Scotland has the rector such authority. In those burgh schools which I have seen he has no power whatever of modifying the curriculum, or of altering the hours of study in any way. Nor has he even the power of appointing the other masters in the school. The authority to do all these things rests with the patrons; and I have not found any instance of their delegating it to the rector. In this respect it will be seen that there is another essential difference between the English public school system and that of the Scotch burgh schools; and I confess that when I first went into Scotland I was greatly prejudiced in favour of the English system of allowing the head master to appoint and remove the rest of the staff. But I found the strongest feeling against any such alteration prevailing among

The first of these considerations is, what preparation the teachers in the burgh schools have had for their profession.

The duties and authority of these teachers, and especially of the rectors of burgh Schools.

The masters are very independent of the rectors.

A strong feeling in favour of this indepen-

dence exists in Scotland. See Appendix VII. (Perth Academy) page 162.

the whole body of schoolmasters. They represented that any such change as would make the masters subordinate to the rector, in any sense except that of precedence, would infallibly cause a deterioration in the caste of burgh school teachers; as men of learning and experience, who are now often glad to get *masterships*, would not consent to accept subaltern posts. From what I saw of the state of feeling in Scotland, I think there is probably much truth in this representation. Besides, the scheme of independent masters is, of course, closely bound up with the Scotch system of payment by fees; which last is the keystone of the whole existing system. If the masters are made subordinate to the rectors in the burgh schools, it will be necessary for the patrons or rectors to receive all the fees and pay the masters fixed salaries; for no teacher would consent to have his livelihood dependent on his fees, and yet to be interfered with by another teacher, and not allowed to follow his own suggestions and plans. In fact, the English system of making the masters subordinate to the rector could not be carried out without a complete alteration of the whole burgh school system; and, after my Scotch tour, I do not now feel sure that the Scotch would be gainers. In boarding schools, and where the masters are young and inexperienced, the English system is no doubt, if not essential, at any rate the best. But in day schools, of the very free and open character which the burgh schools have, it is another matter.* I found two burgh schools where experiment of making the rector supreme over the other teachers had been newly tried, with the necessary accompaniments, of course, of fixed salaries to the teachers. In one of these cases the experiment had no doubt been satisfactory, and so far was working very well. But then it must in fairness be remarked that none of the assistants had an university degree; that they had all been trained with Government assistance as teachers in elementary schools, and had thus been used to subordinate positions; and that the school itself was a parochial as well as a burgh school, and of a more elementary character than any of the other burgh schools which I saw. It should also be added, that the rector was evidently a man of much tact and judgment (*see* Appendix V., p. 144). In the other case, where the staff consisted chiefly of graduates, I did not think that the experiment had so far been at all satisfactory (*see* Appendix VI., p. 146). So strong is the Scotch prejudice against such subordination, that even in cases where the rector is clothed with some official authority over his colleagues, that authority is likely in practice to become merely nominal (*see* Appendix I., p. 77); and I believe the cases are now rare of rectors reviewing the classes of the other masters, as used formerly to be done in the High School of Edinburgh. In one school

The Scotch system is suitable to day schools, where the masters are not young and inexperienced.

* It will be seen that the English system is adopted in Heriot's Hospital, which, of course, is a boarding school, page 180. It appears also to be adopted in some day schools of more modern origin than the burgh schools, such as Glasgow Academy (see page 187), and Edinburgh Academy (page 192). But Edinburgh Academy is, at least in its aims and objects, rather a superior than a secondary school.

indeed (Glasgow High School) there is no rector (*see* Appendix IV., page 118); while in another (Perth Academy) there are two rectors (*see* Appendix VII., p. 163); but in the latter case, as may be supposed, the other masters are really as independent as in Glasgow High School. In short, the system of the Scotch burgh schools may be taken to be, generally, one of co-ordinate teachers, all appointed by the patrons.

The conditions on which they are appointed depend of course on their agreement with the patrons at the date of appointment.

The conditions on which teachers are appointed in the burgh schools.

The maintenance of a proper school building, and the appointment of efficient masters, are the two most important duties of the patrons. I have endeavoured to show (page 38) in what manner they have generally discharged the first of these duties; and the second is certainly not less important than the first. Indeed it would not be a great exaggeration to say that the selection of a good teacher for a school is *everything*. As far as I can ascertain from inquiring into the history of all the burgh schools which I visited, the patrons appear to have always been most scrupulous in their choice of teachers, to have been sincerely anxious to make the best appointments they could, and to have fully felt the weight of the responsibility which lay upon them. I do not believe that any such scandalous instances of favouritism or carelessness in the appointment of masters could be quoted against these Scotch patrons as might unhappily be quoted against some patrons and trustees of English grammar schools. I inquired particularly in many quarters on this subject, and I never heard it questioned or doubted that the patrons of any school had honestly endeavoured to appoint the best man they could find. There were sometimes stories of their having endeavoured to drive a hard bargain with the successful candidate when appointing him; and once I heard a tale of the patrons of a certain school having failed to keep the engagements they had made with a master on appointing him. But I never heard a charge of favouritism, or even of negligence and carelessness, in making an appointment. In old days it appears to have been the custom in many burgh schools, when a candidate was recommended, to require him to pass an examination before some citizens or others of acknowledged learning; and when several candidates equally well recommended appeared, to choose the successful one by a competitive examination. In the History of the High School of Edinburgh, there are many instances of such examinations, on the appointment both of rectors and masters (or "Doctors") as they were anciently called. Thus in May 1702, "Mr. John Johnstone, governor to the Laird of Monkrig, was "preferred to a vacant mastership, having honourably passed an "examination before one of the magistrates, two professors, two "ministers, and the rector of the school." So again in February 1739, there was a competitive examination for a vacant mastership, when the following report was made to the patrons by the examiners :—

The patrons are very careful and judicious in their choice of rectors and masters. See pages 97–8.

It was formerly the custom to examine candidates for masterships in burgh schools.

Instances of this custom at Edinburgh.

"Edinburgh, 12th February, 1739.

"We, hereto subscribing, the judges appointed by the Right Honourable the Lord Provost, magistrates, and town council of Edinburgh, have examined the nine candidates after mentioned, who, on a public advertisement, compeared and offered themselves to a public trial for supplying the vacancy in the High School, viz.:—Messrs. William Lauder, John Mearns, James Innes, James Wilson, James Anderson, Walter Greig, Robert Anderson, William Brown, and John Rae.

"After mature reflection and deliberation on the several parts of the trial prescribed to them the eight of February last, we do give it as our judgment that, as to the extemporary trials upon some passages out of Livy, Horace, and Buchanan's Psalms, eight of the above-named candidates performed very well, and by their explication of the several passages, discovered such an acquaintance with the Latin tongue that, in our opinion, any of them may in that respect be reckoned qualified for the vacant charge; and though some of them performed with a little more exactness and readiness than others, yet we do not think there is ground for making any remarkable difference among them. As to Mr. Wilson, though he declined to explain the passage in Horace, yet on the rest of the passages he acquitted himself tolerably well, and deserves encouragement. As to the last part of the trial prescribed them, viz., the translating an English argument into Latin, though some of the candidates, viz., Mr. William Lauder, Mr. Walter Greig, Mr. Robert Anderson, and Mr. John Rae, and particularly Mr. Lauder, discovered a more elegant and polite turn of writing Latin than the rest; yet in our opinion the performances of the other five were such as might entitle any of them to the vacant office. (*Sic subscrib.*) Will. Wishart, D.D., Pr. C. Edin.; Patrick Cuming, P.H.E.; J. Ker, H.L.P.; John Lees, Sch. Edin. R.; Tho. Rudiman, Bibl. Jurid. Prof."

There are many other examples of similar appointments of masters in this and other burgh schools by examination. Candidates for the rectorship also were not uncommonly examined. Thus for example, "Mr. Alexander Matheson, an usher in the "Grammar School of Haddington, and sometime tutor to Sir "David Kinlock, Bart., of Gilmerton," was examined for the rectorship of the High School, Edinburgh. But the most noteworthy instance is the case of the celebrated Dr. Alexander Adam (so well known in England, Europe, and America, as the author of the "Roman Antiquities"), who was *thrice* examined for the rectorship of the High School; once by a minister, who had recommended him to the provost; a second time by a professor who opposed his appointment; and a third time by "a committee of the most learned men about Edinburgh," named by the town council for the purpose, who made the following report to the patrons:—

"Edinburgh, June 6th, 1768.

"In consequence of a remit to us to take trial of the qualifications of Mr. Adam, we, whose names are here subscribed, do hereby declare that after having taken trial of Mr. Adam, we were fully satisfied that he is well qualified in point of literature to be rector of the High School. (Signed) Geo. Stuart, Patrick Cuming, Robert Hamilton, Robert Dick, Daniel Macqueen, John Erskine."*

It may perhaps surprise some people, that men of learning should have submitted to such trials of their attainments. But there was clearly no false delicacy on such questions, either among

*An interesting account of all the circumstances accompanying the appointment of this celebrated scholar to the rectorship will be found in Dr. Steven's History of the High School, Edinburgh, Chapter III.

the patrons or the scholars of that day; and a candidate for a mastership of a burgh school of that day no more felt it to be a degradation to undergo examination than a candidate for holy orders, or a call to the bar, would now feel it to be a degradation to be examined by the examining chaplain to the Bishop of London, or the Legal Council. Indeed, so little was such delicacy formerly understood, that on one occasion the patrons of the High School, Edinburgh, feeling some doubts of the efficiency of the school, actually ordered that "some of the reverend ministers of "Edinburgh, the reverend principal of the College, with two of "the professors, *do take exact trial of all the present masters' effi-"ciency*, and report the same to the Council;" a much stronger proceeding than the examination of candidates. In judging of these modes of appointment, it must be remembered that the patrons had not in those days that guide which they now have in the university degree. Similar modes of appointment were required by founders of many English grammar schools, and were once common in England also; but since the taking of a degree upon examination has become common, and the class lists have been established at the universities, and their value is known and generally recognized, the custom of examining candidates for masterships has died out, even in cases where it would be desirable to have some test of the nominees' qualifications. Only a few solitary instances of the practice still remain in England (*see* London Report, p. 455), and in Scotland (*see* Appendix I., p. 76).

This custom is no longer prevalent.

By reference to the Appendices it will be seen that the teachers in these burgh schools are now commonly graduates in arts of one or other of the Scotch Universities. I have already hinted (page 34), that the providing of these schools with adequate teachers is one of the present benefits conferred on them by the Universities. In my London Report (pages 289–290) I have expressed an opinion that the graduates of the two great English Universities, and especially the passmen of Oxford, are not as a rule well qualified by their university training to conduct secondary schools; but I do not think the same can be said with equal justice of Scotch graduates. I have not here the time or space to enter into a description of what is required for the degree of M.A, by the several universities; but I think there are some features in the Scotch course which render an ordinary Scotch graduate more likely to succeed as a teacher than an English graduate. For example, the psychological reading of Scotch students seems to me to be an undoubted advantage to them as teachers, and supplies to some extent the place of technical training in the art of instruction. Thus the Scotch teachers who are graduates in arts do not appear to me to show the same obvious want of training as that shown by English graduates. Indeed the Scotch "pass" degree in arts is, at least in two of the Universities, one which implies a much more real amount of reading and thought than the Oxford and Cambridge pass (*see* Appendix I., page 76, and Appendix III., page 114); and this not purely on account of the nature and number of the subjects prescribed by this course,

Most of the teachers in Scotch burgh schools are graduates in Arts of Scotch Universities.

What qualifications for teaching are implied in these degrees.

The course for the ordinary M.A. degree at Aberdeen and Edinburgh is a better guarantee of qualification to teach in a secondary school than that of the

ordinary B.A. degree at Oxford and Cambridge.

but still more on account of the difference in habits and character between the Scotch and English students. It is always possible that the Oxford and Cambridge passman is one who has never known what real work is till he finds himself launched from the University with a B.A. degree, and no funds in his pocket; and thus the measure of his incapacity as a teacher is not merely the trifling amount required by the curriculum, but more especially the want of having passed through a course of self-discipline and self-denial, the exercise of which is the first step towards the formation of a good teacher. Again, I have already remarked that the shortness of the Scotch session enables the students to spend a considerable part of the year in the occupation of assistants in schools, or tutors in private families; and very many avail themselves of this opportunity to obtain some experience in the art of teaching. Thus, for example, I found the rector of the burgh school at Ayr was being assisted in his class during a part of the year by a student of Aberdeen University (*see* Appendix II., page 95), and several other examples of the same thing were brought under my notice. The assistance of students of Aberdeen University indeed appears to be specially valued by classical masters throughout Scotland; and it seems that most of them who, after taking their degree, go out as schoolmasters have thus had some kind of apprenticeship to the "art and mystery" of teaching. This opportunity of practice in teaching during the time of University study is one which, before my visit to Scotland, had already struck me as desirable in England, and I ventured in my London Report (page 290–291), to bring it under the notice of the Commissioners. My subsequent observations in Scotland have confirmed the views I then expressed. Thus, though in one sense I find in Scotland the same defect of technical professional training for the scholastic profession in middle schools which I observe in England,* yet in some important respects this defect is obviated in Scotland, viz., (1.), by the difference in the curriculum for a Scotch pass degree; (2.), by the experience which they obtain in teaching during the University vacations. The gulf, therefore, which I notice in the scholastic profession in England between the well read and highly cultivated graduate in honours of Oxford and Cambridge, and the narrow, but precisely trained elementary teacher, does not exist, or is not so formidable in Scotland. The Scotch Universities, in short, though they would not perhaps succeed in giving a suitable head master to Winchester, Rugby, or Marlborough, or any other great English classical school (see page 200), do furnish a very useful supply of well-qualified secondary teachers to the Scotch middle schools.

Moreover, Scotch students frequently get actual practice in teaching during the University vacations.

The parochial schoolmasters' of Scotland are more available

It must also be remarked, that the parochial or elementary schoolmasters of Scotland are much more available for the purposes of secondary education than the elementary teacher of Eng-

* An important and interesting exception may be noticed in the case of the teacher-bursaries of Heriot's Hospital (see page 181). Indeed, several of the regulations for the management of those bursaries are judicious, and deserve the attention of the Commissioners.

land. I do not of course here intend to enter into the question whether the Scotch or English elementary teachers are the best for elementary teaching; or to consider in which country the elements are most effectually taught. Of course it may well be that the very narrowness and precision of English elementary teachers gives them an advantage *in their proper sphere* over the less methodical Scotch parochial master. It may be that the Scotchman, aiming at too much with young and early removed scholars, sacrifices soundness of knowledge in the many to brilliancy in the few. But with this question I am not concerned. I think, however, there can be little doubt, both from what I have observed and from the nature of the case, that the Scotch parochial teacher makes a better secondary instructor than the English trained master, and that for two simple reasons: (1), Because there is not such a gulf between the different social classes in Scotland as in England (see page 18), (2), Because he is more cultivated; has read and thought more. Where, for example, in England could one find a trained teacher capable of performing the duties discharged by the rector of Hamilton Academy (see Appendix V. page 139)? and compare my Report on the London District, pages 311–312). I do not, of course, intend to bring this as a reproach against the English normal schools, or against the Committee of Council on the education of the labouring poor. The object of these institutions and of that department is, the provision of elementary teachers for the instruction of the labouring poor, not of secondary teachers for the instruction of the middle classes; and the department has only done its duty to the nation, and proved its loyalty to Parliament, by putting a stop to such schemes as those which were entertained by a former distinguished principal of one of the normal schools, for producing secondary teachers at that institution at the public expense.

for middle-class education than the elementary teachers.

Owing to all these causes, besides, no doubt, others which I have omitted to notice, the supply and qualifications of secondary teachers are better in Scotland than in England. In that country a greater abundance of suitable men can be found at a reasonable cost to undertake the work of secondary instruction than in England, and it also seems to me, that those who undertake it come to the work better prepared on the whole, and better qualified than the ordinary teachers of middle schools (especially those of the second and third grade) in England.

The supply of qualified secondary teachers is better in Scotland than in England.

(ii.) *Their Method of Instruction.*—From what I have already stated as to the independence of one another and of the rector, which is generally allowed to the masters in these schools, it might be supposed that there would be little uniformity of method among them, but that colleagues in the same school would be teaching on different systems. This, however, is not the case. There is on the whole a very great similarity of method among those who teach the same subjects throughout the burgh schools which I visited. Of course there must be some differences between the methods used in different schools, caused by

The second consideration is, how these teachers impart instruction.

There is a considerable uniformity of method in the teaching of Scotch burgh schoolmasters.

See Appendices I., II., IV., VII.

the variety in their constitution and in the subjects taught; and there must also, of course, be some difference between the methods of teaching different subjects. But between individual teachers of similar subjects it struck me that there was very little noticeable difference of method. The peculiarities of method in some of the schools are discussed in greater detail than is here necessary in the Appendices; and on this subject I would beg to call the Commissioners' attention especially to Appendices I., II., and IV. But I propose here to mention a few of the peculiarities of method which struck me as generally prevalent among the teachers of some of the leading subjects. The study of *classics,* and particularly of *Greek,* as the Commissioners will observe by reference to Appendix II. (page 86), is not generally commenced so early in Scotch burgh schools as in English grammar schools. The theoretical age of beginning Latin appears to be about 11 years; of Greek about 13 years. In many instances they are begun later; and of course a parent can, if he wishes it, have his son taught Latin at any age by paying a special fee for the subject. But it seems to me that a considerable uniformity and agreement on this subject prevails among those of the middle class who desire their sons to learn classics at all. One result of this system, and of the attention paid to English subjects at the burgh schools is, that boys, when they begin Latin, have almost always had previously some sound training in English grammar, and very often in the analysis of sentences, and have had some practice in writing English and studying composition; and generally they have read and thought more. The master is thus able to teach them in a manner more scientific and philosophical than that which it is perhaps necessary to adopt with very young children (see London Report, page 295), and hence the progress which they make in Latin and Greek is more rapid and intelligent than that ordinarily made by English boys. I heard many lessons given by classical masters to junior classes during the six weeks that I was in Scotland, and was often struck by the more philosophical way of handling the subject which the Scotchmen seemed to adopt. It was not that the text-books, grammars, &c. which they used were (as far as I could judge) more scientific works than those which have hitherto been used in England; but rather that the teacher handled his text-books, his subjects, and his scholars in so much more philosophical and cosmopolitan a manner, with so much more power of illustration, with such an apparent knowledge of the peculiarities of individual scholars, and of the temper and tone of the class. Indeed, in the case of some teachers, almost every remark they made seemed to be a "palpable hit;" so thoroughly did the class appear to sympathize and enjoy it. I think a good deal of this was owing to the age at which the pupils began the dead languages. I have no doubt myself that these languages might with advantage be begun still later than they are in Scotland, and especially if more attention were given meantime to a judicious method of studying French and German. The Scotch, like the English, seem to me to put off the modern subjects to too late a period in

Some of the leading features of their method of teaching indicated.

Age at which the study of Latin and Greek is commenced.

How the method of teaching the classics is affected by this.

It enables the grammatical teaching to be more scientific and intelligent than it can be when commenced with very young children.

their middle schools. But at any rate they do not thrust Greek down a boy's throat at so early an age as we do.

The use of "Versions" in the burgh schools.

Another feature of the system of these teachers is the constant and skilful use of "*versions*" (see page 77). By a version is meant the rendering of English into another language so as to illustrate the application of the grammatical rules of the language to verbal construction and composition. This practice is very largely carried out by all the better classical masters in the burgh schools, and they have a remarkable readiness and facility in translating at sight into good idiomatic Latin. The version may of course be either oral or written, and the best masters make large use of both kinds. From the very commencement of learning Latin or Greek they require their pupils to turn English phrases into these languages, questioning them with the greatest liveliness and rapidity, varying the phrase according to the capacity of the class so as to exhibit the conjugation of a verb or the declension of a noun, or the use of the concords, or the employment of the relative and of the hypothetical moods, with every sort of variety of negative and interrogative form. Thus the dead languages, and especially Latin, are much less *dead* among these schoolmasters than in England. A constant intercommunication of thought *in Latin* goes on between master and pupil; the pupil is trained to express himself in Latin, and not to read it merely. It is clothed with much more life and reality than it could otherwise be, and though perhaps this custom necessitates some sacrifice of pure Augustan Latinity, and the occasional use of words which, however satisfactory to Erasmus would shock an "Ireland" scholar, I venture to think that more is gained by the pupil in vigour and retentiveness than is lost in refinement and subtilty. Perhaps, too, in some schools (where the curriculum still continues somewhat exclusively classical) the attention to versions may be a little overdone; but, on the whole, I am convinced that the Scotch burgh school teachers are more skilful than the ordinary English teacher in middle schools of the second grade in impressing a mastery of grammar upon their scholars (see Appendices I. and IV., pages 80, 128–9), and London Report, pages 493–495).

The Scotch pronunciation of Latin and Greek.

I cannot take leave of this subject of Scotch classical teaching without an allusion to the Scotch method of *pronouncing* the dead languages. Whether the Scotch pronunciation of Latin or Greek is really in any degree an approximation to what we may suppose to have been the native pronunciation of either of these languages at any given period of its history as a living tongue, I do not presume to inquire. I suppose, however, that I may safely assume that it is hardly possible that the Scotch pronunciation can be less like the true original than the English pronunciation must be; and if so, their way of pronouncing is at any rate not archæologically inferior to ours, and not therefore more likely to offend the ears of scholars and philologists. But whether this be so or not I must say that I think that for educational purposes the Scotch have an advantage over us in their mode of pronouncing. I think that their mode of pronouncing helps to give the pupil a

readier insight into the origin, derivations, philology, and relations to one another of the Latin and Greek languages; a clearer appreciation of the connection between the Latin and the Romance languages; and a greater practical use of the Latin tongue.

In short, the teaching of classics in the best burgh schools of Scotland seems to me to be carried on in such a way as to rouse the pupil's intelligence to a remarkable degree. It does not produce such brilliant or well read scholars as the first four or five boys at the best English public schools often are, nor, indeed, would it be fair to expect it to do so, as the Scotch scholars are so much younger; but I think that it produces a larger and more intelligent knowledge of Latin (if not of Greek) in the average boy of 15 and 16 years old than is produced in most English grammar schools. In their classical teaching, as well as in other subjects the Scotch teachers appear to me to aim especially at arousing and developing the intelligence of their scholars, and causing them to think and inquire. On the effects of their teaching in these subjects I shall speak presently (see page 55). The Commissioners will observe, on reference to Appendices I. and III., that I found arithmetic and mathematics not to be very satisfactorily taught in two of the burgh schools which I visited, owing partly to defects in the system and constitution of these schools, and partly to want of discipline and control on the part of the teachers. With these two exceptions I found arithmetic and geometry to be well taught in all the schools which I visited, and especially so in the academies of Perth, Dumfries, and Ayr, and the High School of Glasgow. On reference to Appendix VII. (page 163) it will be seen that there are several interesting departments in the Academy of Perth. One of the best and most interesting of these is the mathematical department, which is conducted by the Rector, a teacher of very great experience, energy, and ability. Not only are algebra, geometry, the theory of arithmetic and plane trigonometry taught in this department with liveliness and accuracy, but I found also a class of 12 pupils who were reading Newth's Mechanics, and who answered extremely well when examined in this subject. I was particularly struck with both the soundness and the *practical tendency* of the teaching in this department. The teacher was thoroughly at home in his work, and kept his class in good order and much interested. He used the black board largely, and was extremely ready with illustration and exemplification. This teaching was better than any I saw in England. At Dumfries also I found the mathematical department very well taught (see Appendix VII.)

The teaching of arithmetic and mathematics.

The short time allotted to my Scotch visit did not permit me to make anything like a thorough investigation of the method of teaching even in the burgh schools of Scotland, although I would gladly have done so; for many of them are or have been celebrated for the methods of instruction which they have originated or adopted. Scotchmen, indeed, have always been noted for their peculiar talent as teachers (witness the names of Bell and Lancaster in primary education, and those of Adam,

Melvin, Mackay, Pillans, and many others in secondary education. And they still seem to retain the gift among them. Like most people, too, who do anything well, they seem to be quite conscious of their ability, and feel no dislike to allowing a stranger to hear them instructing, or examining their classes. In England, as I have mentioned in my report on the London District (page 234), I found it exceedingly difficult to induce masters of schools to conduct their classes in the ordinary way before me. Many were most polite in placing their schools at my disposal, but they objected to give a lesson or conduct the school in my presence. They said, "You may ask any questions "you like, and do what you wish with the boys; but you must "really excuse me; I have never been accustomed to teach in "the presence of a stranger, and I would rather not make the "attempt." Under such circumstances it was of course useless and undesirable to press the point; and on looking back to my notes, I find it is really quite remarkable how seldom I succeeded in inducing a teacher to give instruction in my presence. In Scotland, however, it was quite different. (See pages 77, 95, 127, 141, 153, 160, 173.) The teachers seemed quite proud of their power and influence over their classes and really to delight in handling them in my presence. The celebrated Dr. Adam, when his class at Edinburgh High School was visited by a stranger, would walk down the room to meet him, would take him by the hand and lead him with a hearty welcome to his desk, crying out, "Come away, sir! You "will see more done here in an hour, than in any other school in "Europe." The same spirit seemed to me to animate many of the teachers in the burgh schools and some masters in other schools which I visited. Though they were most courteous in allowing me to examine their classes it was clear they preferred to teach and to question them in my presence; just as a good horseman who has a favourite and clever horse, likes to mount him and show off his paces, his leaping, and his good training himself. And I must confess that judging by the few examples which I saw in English grammar schols of the second grade, I do not much wonder at the unwillingness of the English teachers, or the comparative readiness of the Scotch teachers to conduct their classes in my presence. The contrast was certainly very remarkable. I wish that I could picture to the Commissioners, the interior of such an English grammar school, as I have often seen it both in town and country at about 3 o'clock p.m. The long room empty and vacant in the middle, with the massive old fashioned desks ranged round the walls. The three seats for the teachers, carefully graduated in size; the largest and most imposing for the master at the top of the room; the second at the bottom for the usher; and at one side a smaller desk, inferior in comfort and dignity, for the occasional French master. The 30 boys divided nominally into six forms, of which the sixth contains two or three boys, boarders, who are

Contrast between an English grammar school master and a Scotch Burgh school teacher.

reading "Greek Play," and one of whom is said to be preparing to try for an open scholarship at the university. The fifth form perhaps, "vacant just at present," and the bulk of the scholars in the lower forms classified according to their different degrees of proficiency in Eutropius, Cæsar, and Ovid. The master well clothed and fed, lounging in his chair of state, "hearing the "sixth form," who sit or lean round him, in every variety of posture that can indicate indifference or weariness. The usher, an ignorant untrained drudge,—to whom is committed the care of the boarders in their bed-rooms, and the instruction in those inferior subjects known as "the English branches,"—wearing the listless and depressed look of one who has known or has been vainly hoping for better days. The whole scene one of sleepy monotonous existence; resembling rather a gathering of priests and worshippers of Morpheus than of the Muses.

And then the contrast between such a scene, and that presented by the class-room of a Scotch burgh school, crowded with 60 or 100 boys *and girls*, all nearly of an age, seated in rows at desks or benches, but all placed in the order of merit, with their keen thoughtful faces turned towards the master, watching his every look and every gesture, in the hopes of winning a place in the class, and having good news to bring home to their parents at tea time. The *dux* seated at the head of the class, wearing perhaps a medal; the object of envy and yet of pride to all his fellows; fully conscious both of the glory and the insecurity of his position; and taught, by the experience of many falls, the danger of relaxing his efforts for one moment. In front of this eager animated throng stands the master, gaunt, muscular, and time-worn, poorly clad, and plain in manner and speech, but with the dignity of a ruler in his gestures and the fire of an enthusiast in his eye; never sitting down, but standing always in some commanding position before the class; full of movement, vigour, and energy; so thoroughly versed in his author or his subject that he seldom requires to look at the text-book, which is open in his left hand, while in his right he holds the chalk or the pointer, ever ready to illustrate from map or black board, or perhaps flourishes the ancient "taws" with which in former days he used to reduce disorderly new comers to discipline and order. The whole scene is one of vigorous action and masterly force, forming the greatest possible contrast with the monotonous, unmethodical, ill-seconded working of the English teacher. I have spoken rather at length on the *quality of teachers*. But I think it almost impossible to overrate the importance of this branch of educational inquiry. Do what you will in building, or endowing, or encouraging a school, make for it the most convenient premises; place it in the most favourable situation—give it every advantage of government, wealth, or patronage—but after all the teacher is the pivot on which success or failure turns. I knew this well before I went to Scotland; but I never had it so forcibly brought

home to me as there, that after all the teacher is everything. On one occasion when I was inspecting an English grammar school which, in spite of its endowments, was almost empty, I asked the mayor and other members of the corporation who met me, if they could suggest for the information of the Commission, any reason for the lamentable condition of the school. After a long pause, one of the citizens exclaimed, "I think, sir, if the Commissioners want to know why this school does not fulfil its founders' intentions, you cannot do better than to send them a photograph of the schoolmaster." In this bitter speech there was a real philosophy; a profound perception of a fundamental principle of educational science. Such as the schoolmaster is, such is the school. Describe him, and your readers will know all.

The success of a school depends almost entirely on the teacher.

Before concluding this part of my Report it may not perhaps be out of place, to state in a few words, what I believe to be some of the causes of this superior qualification of Scotchmen as teachers. Part is no doubt due to the proverbial temperament of the Scotch, and part to their psychological training. But still more is probably due to the want of endowment, whereby the teacher's income is made to depend chiefly on his practical success; and to the interest and discrimination with which the Scotch public watches him. The importance of this last consideration must not be forgotten. Natural energy and vigour, even when stimulated by dependence on the public support will not necessarily produce good teaching, unless parents be really interested in the result produced and capable of judging its value. The English adventurer in a private school is often most active, and of course depends entirely on the patronage of the public; but he is not therefore a good teacher; because the English shopkeeper is too busy or too ignorant to guage his merits, and protect himself from an impostor. The theory of endowments of course proceeds partly on the assumption that it is necessary to uphold a wise system of learning among ignorant or apathetic parents; to protect education against apathy, as much as against poverty. All the energy and all the talent of these Scotch teachers would perhaps not produce much more result than that which English country grammar schools afford, were they not seconded and stimulated by the anxious and intelligent watchfulness of parents and patrons and by the consequent eagerness and diligence of children.* I went once or twice to tea, after school hours, at the houses of parents who had children in the burgh schools. The conversation between parents and child was generally opened in this fashion: "Well, Alexander, what place in the class to-day?" And if the answer given did not seem to imply a very high place, the next question would be, "And how many in the class?" and then after that would follow questions as to what he had read in

Reasons why Scotch burgh school masters teach better than English grammar school masters.

The chief reason is the interest which parents take in their children's progress.

* At pages 161–2 I have given a specimen of the amount of preparation required out of school hours from a boy of 12 years old in a burgh school. It will be seen that on some days he has more than three hours' work in preparation.

the class; whether such and such a neighbour's son was above or below him; and if above him, why so; and whether if he worked a little harder he could not manage to take him down; how he had gained, or why he had lost a place; and what the master had said to him; who was *dux;* and did he think he had any chance of ever being *dux,* and so on; every word showing the keen interest of the parent in the son's progress, and the importance which the whole family attached to his success.*

The want of endowment is carried to excess in these schools.

People who follow after knowledge and climb the ladder of learning with such earnestness can perhaps afford to dispense with educational endowments. And yet I cannot help thinking that the want of endowment is carried somewhat to excess even in the burgh schools. Teachers seemed to me to be sometimes a little too dependent on the precarious liberality of town councils; and occasionally, in the case of those among them who profess a less popular subject, such as the classical masters in a purely commercial town, to be underpaid, and scarcely able to support the position of a gentleman. The mode of their payment generally proceeds on a right principle, but their minimum salaries are often a little too small. And, as the want of boarding houses prevents them from making the fortunes which their English confrères make out of "bread and butter," there ought at all events to be a liberal and well regulated system of retiring pensions. I noticed in several Scotch schools a tendency in masters to hold on their appointments after their best days were past, the necessity of which I think it would be a public benefit to obviate. The supply and maintenance of good buildings, the furnishing of proper materials and apparatus; the provision of adequate minimum salaries, and of liberal retiring pensions; and the erection of exhibitions tenable at central grammar schools, are among the most legitimate uses of endowment; and I must not be understood as altogether depreciating the uses, but only as wishing to reform the abuses, of educational endowments. With us endowments are an established fact; and, perhaps, until our middle classes can show the same intelligent interest in their childrens' education, it is as well for us that we have them. But I think we may learn a good deal both from the good and the evil effects of the want of them in Scotch burgh schools, which may serve to guide us in reforming their application.

V. The effects of the education on the scholars.

V. *The Effects of the Education on the Scholars.*—Besides attending the ordinary meetings of the classes in the nine burgh schools, and listening to the teaching of the rectors and masters, I made some brief oral and written examinations of the scholars, and the results of some of the examinations will be seen in the Appendices. On the whole, I was not at all disappointed in these results, and considered that they supported

* The small amount of vacation allowed in most of these burgh schools is worthy of notice (see pages 68, 91, 119, 128). See also the small amount allowed in Edinburgh Academy, compared with the amount allowed in the English public schools (page 193).

and confirmed the impressions I had derived from hearing the teaching of the masters. Performance will, of course, never quite come up to promise, or results to that which we anticipate. It is sufficient if the results of examination, minutely analysed, and then broadly viewed, on the whole confirm the conclusions, derived from observation, inquiry, and inspection.

Judging from these results, and also from what I observed in some other schools in Scotland, I should say that a really remarkable quantity of sound work is got through and mastered. The lament that *there is not time enough* for this subject or that, so frequently heard in English secondary schools, or from English parents of the middle class, seemed to me to be much less common in these Scotch schools. A certain amount of Latin and Greek is done in all the burgh schools which I visited, and yet the basis of the education is in all of them (except Aberdeen Grammar School and Edinburgh High School), decidedly wide, and might in several (such as Glasgow High School and Perth Academy), be almost called *modern*. In all of them *instruction in English* forms an important part of the course, and modern languages (though not, I think, well taught in most,) are not entirely neglected in any. In the Appendices will be found some more detailed reports upon the results of instruction in the nine burgh schools, as tested by my examinations, and some Tables in which these results are minutely analysed. I shall not in this portion of my Report enter particularly into these details, but shall only here recapitulate in a summary form the general conclusions which seem to me to be deducible from these Appendices.

Judged from oral and written examinations.

(i.) *As regards the Education of Boys.*—The results of the *classical* teaching are criticised in Appendix I, page 80, Appendix II. page 96, Appendix III. page 117, and Appendix IV. page 129, and may be summarized thus :—In *Greek* the boys do not proceed far. In most of these schools they read Xenophon and a little Homer; in some a little Greek play, but very seldom any of Thucydides, Herodotus, and the orators. (In Edinburgh High School they go rather further than in the other schools). They also go very little way in Greek composition, but what they learn of Greek they learn on the whole intelligently. In *Latin* they make an excellent general progress. Individuals do not go so far in Latin scholarship as the head boys of English grammar schools of the first grade (they are at least two years younger, and belong to a poorer class), but their *average* work, the general mean level of the results which they produce, are much better than in *most* English schools, perhaps even of the first grade. Most of the nine burgh schools read Cæsar, Ovid, Virgil, and the easier parts of Cicero, Livy, and Horace ; but few attempt Tacitus, Juvenal, or Lucretius. Latin prose is much studied, especially in the north of Scotland, and good progress is generally made in this subject. Hardly any versification is attempted, though the boys are often acquainted with the chief rules of prosody, and the composition of the metres most commonly in

(i.) As regards the education of boys.

In Classics.

Greek.

Latin.

use. Oral translation from classical authors into English is sometimes remarkably well done, and generally the Latin work shows thought and intelligence. Very little of the text of authors is committed to memory. Some of the burgh schools have "private readings," or "optional classes," in which the classical reading of many of the pupils is carried further. But with these, as not forming a part of the recognized public course in these schools, I am not concerned.

In short, the classical attainments of the boys in the Scotch burgh schools seem to me to be at least equal, *in the average*, to those of boys in the English grammar schools of the first grade, though inferior in point of individual excellence; and they seem to me to be, in almost all respects, superior to those of boys in English grammar schools of the second grade.

In Mathematics.

In *mathematics* the boys do not *generally* proceed far. No such results as those in the City of London School, or Christ's Hospital (London Report, page 511), can be produced at any school that I visited, except, perhaps, Perth Academy. (Here again the age at which they leave school must be remembered.) But they are generally extremely well taught. As in classics, so in mathematics, there is a general good level of result, though perhaps few examples of such individual excellence, as may be found in the English grammar schools of the first grade. (See Appendix II. page 95, and Appendix VI. page 154). Much fewer instances of complete failure occur in my examinations of these Scotch classes in arithmetic, algebra, geometry, trigonometry, &c., than in the examination of classes in most English schools. A little is professed, but all master that little. The teaching in *mechanics* is sometimes excellent, and generally the mathematical teaching has a *practical* tendency (as at Perth and Dollar academies), which I think has gone a long way towards making the Scotch pupils *successful* men.

In modern Languages.

In *modern languages* not much is done. I do not think that generally the results of the teaching of these subjects to boys in Scotch Burgh schools are much better than in English grammar schools. There are no doubt some exceptions (see Appendix VII. page 168), but on the whole, I do not find much to praise in this branch.*

In English, and kindred modern subjects.

Of *English instruction* the results seem to me to be excellent. The spelling I found generally remarkably good, and the reading fair. A good deal of geography and history was professed, and well known. Even in the most classical schools, such as Aberdeen Grammar School I did not find boys ignorant of the outlines of British History or the leading principles of the British Constitution. Along with these subjects some teachers gave most inte-

* The teaching of French is generally begun too late in the pupil's age, at the burgh schools. If Latin and Greek are postponed, as they usually are, till the pupil is from 11 to 14 years old some progress ought meantime to be made in French, and, with clever boys, in German also. It will be seen that the study of French is begun earlier at Edinburgh Academy than at most Scotch schools, and it is taught by an Englishman who has graduated abroad. This is the best way of teaching modern languages to young children (see page 193 and compare page 212).

resting lessons in geology (see Appendix IV. page 130) and natural history. Grammar was generally better done than in English schools, and particularly the analysis of sentences, on the method of Mason or Dalgleish. This analysis was often most intelligently applied by the scholars to their Latin authors, a feature well worthy of notice. As in England, hardly any political economy is studied. The most interesting feature of all the work done by boys in these schools, whether ancient or modern, was the life, earnestness and intelligence with which it was done, and the comparatively small number of cases in which instruction appeared to be a failure or to produce very inadequate results.

(ii.) As regards the education of girls.

(ii.) *As regards the Education of girls.* It is of course unnecessary here to descant on the justice (I do not say *liberality*) which in Scotland generally allows girls to share if they wish it, in the benefits of these public institutions for education. If the Scotch Universities are, like those in England, closed to women, yet girls are not at any rate shut out from all participation in public education. Many of the burgh schools admit girls as well as boys to their classes, though some refuse to do so. Among those that I visited, the High Schools of Glasgow and Edinburgh and the Grammar School of Aberdeen exclude girls. But the rest all admit them, though under different conditions. There are three modes of conducting these mixed secondary schools in Scotland. One mode is to keep the girls and boys entirely separate, taught in different blocks or class-rooms, though all are members of one common institution. This mode is adopted in Inverness Academy. Another mode is to make no separation at all between the boys and the girls, but to keep them together and teach them in the same class-rooms and on the same benches. This is the mode adopted in Hamilton Academy. A third mode is to keep them together until they reach a certain age, and then to separate them, as is done in Ayr Academy (see Appendices II., V., and VI.) I had already, before my visit to Scotland, been used to inspect mixed grammar schools of boys and girls in the north of England (*e. g.* the town school of Alnwick in Northumberland). I had never seen any reason to disapprove of this mixture of the sexes in day schools under careful management and judicious regulations, nor is my view at all altered by what I observed and heard in my Scotch tour. I did not remark any levity or faults of discipline in Ayr, Hamilton, or Perth Academies, and I was told that no instance had occurred of any mischief resulting from such meetings of boys and girls in these day schools. On the contrary, I am inclined to think, from what I saw in Scotland, that the presence of the girls both civilizes and stimulates the boys, and that the opportunity of working with the boys strengthens the judgment and braces the mental faculties of the girls. At all events I saw no harm resulting from the mixture, and if so it is decidedly an advantage to the girls to obtain a share of public instruction. It would, however, be impossible from what I saw in these burgh schools to form any general opinion of the Scotch education of girls. It is well known that the subject of girls education has

The burgh schools generally admit girls to their classes, but under different conditions. See Appendix VI., page 144.

No evil effect appears to result from this combination of boys and girls in the same schools.

A general opinion of the Scotch public education of girls cannot be formed from an inspection of the burgh schools.

received much attention in Scotland, and that the Scotch were among the first to establish in Edinburgh and Glasgow those schools for girls partly of a proprietary and partly of a private character which have been subsequently imitated in England, and are called "Institutions," or "Ladies Academies," or "Ladies Colleges." It is to these schools that the great majority of these Scotch girls of the middle classes who do not receive an entirely private or domestic education usually go, and it is in them that the condition of girls' education in Scotland can best be studied. The burgh schools are, I think, attended by girls of a class socially rather lower than that of the boys, or rather, perhaps I should say they are not so generally or so widely used by the girls as by the boys. As it was impossible for me, owing to pressure of time, to visit any of these "Ladies Colleges" I shall not attempt any general view of the education of girls of the middle classes in Scotland; but shall confine myself to a few remarks on the effects of their studies in burgh schools.

There are other institutions of a partially public character, in which girls of the middle class are educated in Scotland.

In those schools which I visited the girls did not, on the whole, sufficiently avail themselves of the opportunities of study in the more severe subjects, such as Latin and mathematics. The subjects generally in vogue among them are English (including geography, grammar, and history), elementary arithmetic, modern languages, music, and drawing. I did not find the attendance of the girls in the Latin or mathematical classes to be nearly so large in proportion to their number on the rolls as that of the boys; yet there is more of it than in England, and when they do attend to these subjects they seem to me to do them remarkably well. I shall not forget, in one class room, a girl standing up with the boys in a large class of 30 or 40, and answering oral questions in the first six books of Euclid, with abundance of deductions and every variety of illustration on the black board, in a style which really quite astonished me (see Appendix VII., page 160). But this I think must be a rare sight even in Scotland. In another school I found a large class of girls, who passed a capital examination in Virgil; the questions put to them being exactly such as I should put to boys in a classical school, and answered in the same way. These cases, though perhaps rare, seem to me worthy of notice, as precedents, or examples, of what can be done in a public school for girls. In geography and history I found that classes of girls answered remarkably well; and almost all teachers agreed with me that the main difference between boys and girls, as regards the amount of instruction which they will bear, consists in the fact that the girls are physically weaker than the boys, and have not so much power of mental endurance. In every other scholastic respect, they considered them much alike; and I confess that I could not detect in their papers or answering any differences upon which I could found a theory, or a general conclusion. The only thing which seemed to me to point to anything like the existence of mental differences was, that the *arithmetic* of the girls, even when taught by the same teachers as the boys, was almost always inferior. Indeed, in this respect I

Not many of the girls in the burgh schools study classics or mathematics. Appendix VII., pages 158, 166.

Compare pages 95, 204–5.

But those who do so make excellent progress in those subjects.

Examples of this.

They also do well in all other subjects except arithmetic.

do not think that I can give more praise to the girls in these burgh schools than to those whom I examined in England (see Appendix VI., page 154, and compare London Report, page 398). In modern languages, music, and drawing* I did not think that the instruction given or the results attained were generally much better than in England; but an exception must be made as regards French in favour of Perth Academy, and as regards music in favour of Inverness Academy (see Appendices VI. and VII., pages 154, 168). In English grammar, and especially in the analysis of sentences, the girls generally did remarkably well; much better than those whom I examined in England.

On the whole I think the results produced in the education of girls in these burgh schools *slightly* better than those produced in the girls' schools which I visited in London; but not remarkably so.

From what I had heard in London before starting on my Scotch tour, I was most agreeably surprised at the discipline prevailing in these Scotch schools. On this subject most Government Inspectors of Schools, accustomed to the precise order and exact discipline which is required in the elementary schools in England, are apt to be severe critics. But I was in almost every instance perfectly satisfied with the discipline and tone of these burgh schools, whether mixed, or for boys only. No opportunity of course occurs, in day schools such as these, for the development of anything like the English public school life, as seen at Harrow, Rugby, or Marlborough. But it is quite a question how far Scotch boys are losers, by the want of this experience. They certainly show no want of manliness, self-restraint, or the power of governing others in India or the colonies. Indeed their practical success in life is proverbial.

Tone and discipline of scholars in the burgh schools.

Conclusion.

Conclusion of the Report.

If I am asked to say what is the most important conclusion that I derive from my brief inspection of Scotch burgh schools, what is the educational principle which that tour has most strongly impressed on my mind, it is this,—Education to be good, must be popular. No people can have a really good education, unless they show a real desire for it and take a real interest in it. There are many minor lessons which I learn at the same time, such as the uses and abuses of endowments, and the direction in which they should be reformed; the importance of not placing masters beyond the influence of the public favour, and of making them neither too dependent nor too independent; the value of cheap means of education and psychological training for the teachers of secondary schools; the advantages of day school education for the middle classes, and the like.

* As regards instruction in drawing for boys and girls in secondary schools, I am confirmed, by what I saw in Scotland, in the opinion given in my Report on Secondary Education in London, page 303, that the best way of procuring such instruction is to take the pupils to a school of art, and to submit them to the examinations of the official art inspector.

But all these seem to me to be less vital truths than the great maxim that no good education will be produced until there is a demand for it. And all considerations prompted by my inquiry seem to me to be subordinate to the one great question which is suggested by this maxim—How is this demand to be excited among the middle classes?

Why are these nine Scotch burgh schools so well attended? And why is such good work done in most of them? Because they are constantly stimulated from without. Public feeling, public demand for the things which they produce, make them work; and public interest in the result of their work helps to make that result successful.* The schools are in sympathy with the public, and supply what the public wants; and the public therefore co-operates with them. Let the Commissioners remark the *numbers* of children attending these burgh schools (given in the Appendices), and note their significance. The mere fact, for example, that 390 children are attending as day scholars at the burgh school of Ayr, a town with less than the population of Reading or Canterbury, is in itself, irrespectively of the quality of the education afforded in that burgh school, a most healthy symptom. Where in England could we produce such an instance of interest and confidence in a public school among the middle classes of our rural population?

Why, again, are English grammar schools so thinly attended? And why, proportionably to their wealth, is so little done in them? Because they are not stimulated from without. They are out of sympathy with the public; and the public distrusts and will not work with them. It is with education, in this respect, as with trade. There are certain things of which the customer (the farmer or shopkeeper) feels the want, which he considers necessary to him, and which he thinks he must have. There are certain other things of which he thinks he has not so much need, or for which he has no taste. Can he be induced to buy by offering him the things which he thinks he does not want, and by keeping those which he thinks he does want out of his sight? Is this politic? Will it not drive him away altogether to purchase in another quarter? Might he not by judicious treatment be gradually brought to want and to desire to buy those things for which he has now no taste? Yet the English grammar schools do not, as a rule, do this. They may be right in their theory of what is the best system of education, and what it is best for the shopkeeper's children to learn. But he does not think they are. And as they have made much of what he considers unsuitable to him, and have ignored that which seems to him necessary, he has come, through a long series of years, to regard them as hopelessly perverse; to lose all interest

* I wish it to be distinctly understood that the terms in which here, and throughout this Report, I speak of these burgh schools are relative to the condition of English grammar schools. I consider these burgh schools to be on the whole very good and useful institutions in comparison with the majority of English grammar schools. But I do not mean that the burgh schools are faultless. On the contrary I can, even after this short visit to Scotland, perceive some important defects in them, and I have hinted at some of these in the Appendices (see pages 141, 186–7, 200).

in them; and either to forsake them altogether for more complacent adventurers, or at least to consider them as an unsatisfactory makeshift in which he cannot be expected to take much concern. The result of all this is that educational enthusiasm is nipped and blighted. Whatever vigour remains flows into private schools, and the waste of force is enormous.

Let the grammar schools, like the Scotch burgh schools, assimilate themselves to public requirements; popularize their education; and condescend to consider things as they are, as a first practical step towards making things as they should be. I know that of themselves they cannot do this; but that the strong hand of authority, guided by men of real educational experience, and of that courage which proceeds from plenitude of knowledge and keen insight, must interfere, on a scale never before attempted in this country, in order to help those schools to set themselves right with the public, and to start them on a new career of life and vigorous usefulness. But, as soon as they begin to provide that which the public wants in a manner which appeals to the untutored instincts of plain men, the public will be aroused and stimulated; and the movement, once begun, will not die out, but will be progressively increased in breadth and intensity. Then, indeed, when popular sympathy has once been enlisted in favour of the grammar schools, and they have been received back into popular favour and esteem, they may more reasonably be expected to lead, to refine, and to elevate the taste and the aspirations of the people.

I have the honour to be
My Lords and Gentlemen,
Your obedient servant,
D. R. Fearon.

APPENDIX.

I. On Aberdeen Grammar School. Pages 62–82.
II. On Ayr Academy. Pages 83–96.
III. On Edinburgh High School. Pages 97–118.
IV. On Glasgow High School. Pages 118–132.
V. On Hamilton Academy. Pages 133–144.
VI. On Inverness Academy. Pages 144–156.
VII. On the Academies of Dumfries and Perth; and the High School of Stirling. Pages 157–174.
VIII. On the Expenses of Boarding in English Grammar Schools and Scotch Burghs. Page 175.
IX. A Tabular Comparison of certain Scotch and English Schools. Page 176.
X. Miscellaneous. Pages 177–214.
XI. Examination Papers. Pages 215–222.

APPENDIX I.—THE GRAMMAR SCHOOL, ABERDEEN.

Preliminary.

This school, on account of its antiquity, its reputation, its endowments, and its close connexion with the University of Aberdeen, is one of the most important in Scotland. It is on these grounds, and also because it resembles an English grammar school more nearly than any of the other Scotch burgh schools which I visited, worthy of a careful study.

I have no information as to the date and origin of the foundation of this grammar school; but I observe that in the school calendar one Thomas de Bennum is mentioned as rector in the year 1262, and that the names of 26 rectors are given between the years 1418 and 1860, when the present rector was appointed. The school is, in fact, one of the oldest burgh schools in Scotland.

The endowment of this school is derived from two sources, viz.:—

(i.) From the bequest of Dr. Patrick Dunn:

(ii.) From the grants made by the town council of Aberdeen.

(i.) In the year 1631 "Mr. Patrick Dune, Doctor in Physick, and "primar of the New College within the brugh of Aberdeine," by a deed of mortification dated August 3rd, mortified the lands of Ferriehill, with certain appurtenances, "to the provest, baillies, councell and com- "munitie of this brugh, perpetually, in all time coming for maintenance "of four maisteris within their grammer school." It was Dr. Dunn's intention that the income resulting from the land thus mortified should be accumulated and invested in the purchase of other lands, until the whole amount of land thus purchased, together with the lands of Ferriehill, should produce the yearly income of 1,200 marks, Scots money. The whole of this sum was to be employed upon the maintenance of four masters of the grammar school of the borough of Aberdeen, in the following proportions:—the "first and principal master" was to to have 600 marks as his yearly stipend; the other three masters were to receive annually 200 marks each. To this endowment there were

several conditions attached by the deed, of which the following are the most important. (1) It should not be lawful for the said four masters to take as school fees more than 13*s.* 4*d.* per quarter, Scots money, unless such scholar were the son of a marquis, earl, viscount, lord, or baron, in which case each master should be at liberty to take for himself whatever such nobleman chose to pay. (2) Any scholar coming to the grammar school, and bringing with him a testimonial subscribed by honest and famous men, declaring his poverty, or the poverty of his parents, should be taught gratis. (3) All scholars of the surname of Dunn should be taught gratis. (4) All sons of tenants of the lands of Ferriehill should be taught gratis. (5) The magistrates and council should, once at least every month in the year, appoint visitors for visitation of the school, to try if the laws of the school be observed both in doctrine and discipline, and if the whole conditions of this mortification be kept by the four masters. (6) The principal master should come yearly at Michaelmas, and also once every month, to the magistrates and council to remind them to direct their visitors to make the said visitation; and if the principal master should neglect this duty, it should be lawful for any honest man within the town of Aberdeen to challenge him of this neglect before the provost and baillies of the burgh; and upon proof being given of such neglect on the part of the principal master, he should lose 10 marks of his stipend for each month's neglect, such 10 marks being paid on each occasion to the challenger.

Dr. Dunn further ordained that after his death the provost, baillies, and council of the borough, together with his three nephews and their heirs male of perfect age, they being known to be honest and conscientious men and not given to railing, should be patrons in perpetuum of his mortification and presenters of the four foundation masters: that any master found "deboarding in life and defective in duty," should *ipso facto* be deprived of his office by the magistrates and council, and another be admitted to his place: that any candidate presented for the place of foundation master should be tried by two ministers of the borough, together with the principal and four regents within the new college in Aberdeen, who being solemnly sworn should testify the candidate to be worthy, and sufficiently learned and qualified for such place; but that in such presentations preference should be given to any candidate of the surname of Dunn, and to any son of a tenant on the land from which the endowment was derived: and that immediately before the admission of any such master, an oath should be exacted of him to do what lies in his power for the well of the college marischal within the burgh, and to prefer the same to all colleges in giving counsel to his scholars to be brought up in the said college marischal.

The duties of the masters, the subjects they shall teach, and their authority over the scholars are not defined in the deed; the only words on this subject being "the first and principal master I ordain to teach "the high class of the said school, *and to have the inspection and over-*"*sight of the rest of the masters.*" The school had at the date of this endowment been in existence for about four centuries. Its system and curriculum were probably established and notorious, and doubtless were similar to those of other Scotch burgh grammar schools of the seventeenth century; and the fact that Dr. Dunn does not ordain any regulations on these matters seems to indicate that he was well satisfied with the existing methods. His main objects in making this deed of mortification appear to have been—(1) To provide good teachers for the existing burgh school, and to stimulate and encourage such teachers in their work. (2) To secure a supply of well-grounded and well-trained students to the new marischal college in Aberdeen.

The "lands of Ferryhill," which are in the immediate vicinity of the town of Aberdeen, are now very valuable; but little benefit is derived from them by the teachers in the grammar school. They were sold, as I am informed, a long time ago by the town council, burdened only with the annual payment of about 160*l.*,* and this is now the whole sum realized from Dr. Dunn's bequest.

(*ii*) The grants made by the town council are voluntary, and have only been made for about eight years. Nevertheless, they are here, as in the case of all the Scotch burgh schools which I visited, reckoned by the masters, the patrons, and the residents in the locality generally, as endowments, and as such I shall, therefore, consider them. The rector of the grammar school has a salary of about 160*l.* per annum, of which about one half is paid from Dr. Dunn's bequest, and the other half is furnished by the town council. The three other masters upon Dr. Dunn's foundation receive each an annual salary of 50*l.*, of which one half is paid from Dr. Dunn's bequest, and the other half is furnished by the town council. A fifth classical master, recently added to the staff of the school, receives a salary of 50*l.* per annum, entirely from the town council. The mathematical master receives a salary of 20*l.* per annum, entirely from the town council. None of the other masters receive endowments, but are dependent for their income upon the fees of their pupils.

The amount of endowment, therefore, which goes to the direct support of the masters of the grammar school is 380*l.*, which is distributed among the several teachers in the following proportion:—

	From Dr. Dunn's Foundation.	From the Town Council.
	£	£
Rector or Principal Master - - -	85	75
First Classical Master - - -	25	25
Second „ „ - - -	25	25
Third „ „ - - -	25	25
Fourth „ „ - - -	—	50
Mathematical Master - - -	—	20
Total -	160	220

To this annual endowment of 380*l.* must be added the sum expended by the town council in maintaining the buildings and providing for the current expenses of the school. These expenses amounted in the year, commencing Sept. 30, 1865 and ending Sept. 30, 1866, to 800*l.*, including the interest and part repayment of the debt created by the building of the new school.

Thus the total amount of annual endowment, at present received directly by the grammar school, is about 1,180*l.*; but there are certain other funds, in which though they cannot be reckoned as endowments, the school has, nevertheless, the greatest interest, which are almost more valuable and important to it than its direct endowments, and which, as attracting scholars who swell the receipts from fees, might even be reckoned in a kind of indirect manner as actual endowments. The funds to which I allude are the *bursaries*, or exhibitions as we call them in England, which are all tenable at the school, and are all given by private patronage without any examination.

* In the year 1865–6 the actual sum derived from the mortification appears to have been 166*l.* 16*s.*

The following is a list of these bursaries :—

Name and Date.	Amount, Number, and how long tenable.	Patrons.
Drum, 1629 -	Four of 6*l.* 13*s.* 4*d.*, tenable for four years.	Alexander Irvine, Esq., of Drum.
Robertson, 1644 -	One of 5*l.*, tenable for four years.	Town Council.
Rolland, 1659 -	Five at 7*l.*, for sons of decayed burgesses of Guild; and ten at 3*l.*; tenable for five years.	Town Council.
Cruickshank, 1746	Two of 5*l.*, tenable for five years; and 20*l.* apprentice fee.	Town Council.
Paterson, 1762 -	Two of 7*l.*, tenable for four years.	The Principal of the University.
Lorimer, 1764 -	Two of 16*l.*, tenable for one year.	The Moderator and Kirk Session of Cullen.

There had been, before the date of my visit to Aberdeen, some agitation and discussion on the subject of these bursaries. Some persons with whom I spoke were of opinion that they ought to be given by open competition. They considered that the present system of private presentation, unchecked by any examination of the bursar presented, does more harm than good to the grammar school, supplying it with a number of ignorant boys who are a drag upon the class in which they are placed, and keep down the general standard of the attainments in the school. They said, also, that the knowledge that a bursary might be obtained by private interest, and without careful training, is a positive discouragement to learning throughout the country, and an encouragement to idle or careless parents. They therefore desired, as the only satisfactory method of filling up these appointments, that they should be given by public competition. Others urged that these bursaries were bequeathed for the special purpose of providing poor children, whose parents were unable to afford the full value of a liberal education, with an opportunity of such an education; and this purpose would be to some extent frustrated if the bursaries were thrown open to competition, as the tendency of such a measure would be to favour the election of children of richer parents who could afford to prepare them well for the competition. They also laid great stress on the evil effects of a competition among boys of a tender age.

The rector of the grammar school was of opinion, and I agree with his view, that the best method of settling this question would be to continue the present mode of presenting to the bursaries by private favour, but to require that each bursar should pass a minimum examination, conducted by the rector and other masters of the school, before being admitted to his bursary; and in case the patron of any bursary should be unable to produce a candidate capable of passing the required examination, then to throw open the bursary to competition. Also to consider each bursar's tenure of his bursary from year to year to be subject to the passing of his class examination fairly, and to his obtaining his master's certificate of good conduct. It seems to me that some such plan as this would keep the bursaries open to poor boys and moderate but diligent scholars, while protecting the rest of the school from the

dead weight which it now has to carry in the shape of hopelessly neglected or idle bursars.

My visit to this school was paid in June 1866, and I spent five days in inspecting the school and examining the scholars. The number of scholars on the roll of the school at the date of my visit was 308, and of these 281 were present on Thursday June 7, 1866, one of the days which I occupied in my inspection.

The school, like all the burgh schools which I saw in Scotland, is entirely a day school. There are no public residences for the masters; and if any of them take boarders or pupils it is entirely a private matter with which, so long as they perform their duties in the allotted school hours, the patrons are not concerned. The scholars are divided into two divisions, called respectively *alumni* and *extranei*. Alumni, are such pupils as have been for four quarters, or one year, in attendance at the school. Extranei, are those who have attended any shorter period. For it must be remembered that here, as at Glasgow, and at all the burgh schools which I saw, boys may enter for only one quarter. Formerly the *alumni* had privileges in respect of the bursaries, &c.; now they and the *extranei* are on the same footing in all respects.

I have stated that this school was originally a grammar school. It was designed for the teaching of the grammar of the classical languages and especially of Latin. In this respect it resembles one of our English grammar schools, and I believe that up to a recent period very little was taught in the school besides Latin literature. One of the most distinguished barristers in London, who was himself a pupil in this school, has told me that in his day such was the case, and that the main object of the school was at that time to prepare boys for the competition bursaries, which were then allotted after examination in Latin alone.

Although this state of things no longer exists, the school has undergone less change in respect of its classical curriculum than any other burgh school which I visited. It is true that a mathematical master has been added to the number of those receiving stipends from the town council; and that three other teachers, of modern languages, of English, and of drawing, respectively, are authorized to take classes in the school buildings and to receive the fees of pupils who come to them. But the characteristic feature of the school course is still the classics. All boys must enter to Latin; and they cannot come under the English master until they have reached the standard of the third class in Latin and Greek. The course of instruction here, as at Glasgow, is supposed to last five years; and the pupils are divided into five classes, on the supposition that they will spend a year in each class. And as a matter of fact, pupils almost always do spend one year in each class, neither more nor less, whatever their abilities. For here, as at Glasgow, the system obtains of moving up whole classes at the year's end, without regard to the place obtained by individual scholars in each class. Few things struck me more in the Scotch burgh schools, than this practice of promoting boys by time, and not as in England, by examination or place in class. On this question, however, I have spoken elsewhere, page 25. Whatever may be thought of the practice, it is one which could not be abolished in this school without an entire alteration in the method of paying the classical masters. For as each master receives for himself the fees of the pupils who are learning from him, it is necessary that he should take charge of those pupils throughout their entire course. No master would consent to let his year's income depend in a great measure on the number of boys past up to him from the class below his own, nor would he be pleased to see his income diminished

by the removal from his class of boys whom he had instructed so well during the year, that they were fit for promotion. Hence the following plan is adopted in this school for avoiding jealousies and grounds of complaint among the masters. There are four classical masters besides the rector. The course is, as I have stated, calculated for five years. The rector receives the fees of all those pupils who enter the fifth year's course, whether as new comers, or by promotion from the fourth year's course. All the pupils reading in the fifth year's work are necessarily his pupils, and pay their fees to him. But the other four years are taken by the other four classical masters in rotation. Thus, suppose the four masters to be named A, B, C, and D, and that in 1865 A is taking the first year's class, or as it is more commonly called the first class, B the second class, C the third, and D the fourth; then in 1866 A will be taking the second year's class, B the third, C the fourth, and D the first; and 1867 A will be taking the third year's class, B the fourth, C the first, D the second; and so on. Thus, supposing six pupils a, b, c, d, e, and f, to come to A in 1865, they would all in that year be in the first class; in 1866 they would all be in the second class; in 1867 they would all be in the third; in 1868 they would all be in the fourth, still under the tuition of A. But if they continued at the school in 1869, they would be in the fifth class and under the rector. The only teacher who takes always the same class is the rector, who is required by the terms of Dr. Dunn's bequest to do so. The following is the time table and scale of fees as published in the school calendar for 1865–6, and in force at the date of my visit :—

Rector, Rev. William Barrack, A.M.

Classical Masters, Rev. Alexander Beverly, A.M.; Rev. James Wilson Legge, A.M. Alexander Martin, A.M.; Thomas Still, A.M.

Writing, Arithmetic, and Mathematics, Rev. Robert Aikman Gray, A.M., and Assistants.

French and German, Mr. C. F. Müller. *English*, Mr. William Rattray.

Drawing, Mr. Peter Cleland. *Gymnastics*, Mr. Henry Roland.

Janitor, George Jolly.

Classes.	Masters.	Hours.	Fees.
Sixth	The Rector	Greek, 2–3	15*s.* per quarter.
	Mr. Still	Latin, 3–4	15*s.* ,,
Fifth	The Rector	Latin, 9–11½	11*s.* ,,
		Greek, 3–4	5*s.* ,,
Fourth	Mr. Still	Latin, 9–11½	11*s.* ,,
		Greek, 2–3	5*s.* ,,
Third (Latin, Greek, English.)	Mr. Martin	9–10½, 11½–12½, and 2–4.	13*s.* 6*d.* ,,
Second (Latin and English.)	Mr. Beverly	10½–12½ and 2–4	13*s.* 6*d.* ,,
First (Latin and English.)	Mr. Legge	10½–12½ and 2–4	13*s.* 6*d.* ,,
French and German	Mr. Müller	12–1 & 1–2, Monday, Wednesday & Friday.	10*s.* 6*d.* ,,
English	Mr. Rattray	Junior, 3–4	7*s.* 6*d.* ,,
		Senior, 2–3	7*s.* 6*d.* ,,
Arithmetic and Mathematics.	Mr. Gray	Various hours from 9 to 2.	6*s.* per hr. per qr.
Writing	Mr. Gray's assistant	9–10½	6*s.* ,, ,,
Drawing	Mr. Cleland	Tues. and Thur., 1–2; Wed. and Fri. 3–4.	10*s.* 6*d.* per qr.
Gymnastics	Mr. Roland	Mon. and Thur., 4–5, in Aug. and Sept.	10*s.* 6*d.* per qr.

General expenses 1*s.* 6*d.* per quarter.

The sixth class, named in the preceding programme has never had an actual existence. At the date of the printing of this programme it was hoped that the University of Aberdeen was about to establish a matriculation examination ; but this hope was not fulfilled, and the project of a sixth year's class failed. I was informed that the fifth year's class at the school is higher in its standard of attainment than the junior humanity at the university ; and this was said to be proved by the fact that shortly before my visit some boys in the fourth class, being afraid that they would not be able to pass the rector's examination for admission into the fifth class, went on to the university instead. It will be observed that there is theoretically a standard of attainments for admission into each class of the school. The rules on this matter are, "On such and such a day of "November in each year the school will be opened after the competition "holidays for the entrance examinations for the various classes, the "subjects of examination being the work of the previous three months "in each class. Pupils intending to join the first class will have to pass "an entrance examination, which will consist in writing to dictation a "few simple English sentences, and showing a sufficient knowledge of "the elements of English grammar. Pupils from other schools will be "examined separately by the masters of the classes which they propose "to join, on whatever books they have been previously reading." There is, therefore, an examination for the admission of new comers, and the promotion of *alumni*, and I am told that every year some two or three boys are refused admission or promotion ; but I do not think from what I observed that the examination is a very serious affair, and I have no doubt that the almost universal custom is to promote all and reject none. Bursars, as I have stated, cannot be rejected, whatever their attainments. The school course begins in November each year, and the quantity of vacation allowed is moderate, amounting altogether to about 11 weeks in the year.

The following was the work done in each class during the school year beginning November 1864, and ending November 1865. It will afford a good example of the classical standard in one of the most strictly classical of the Scotch burgh schools :—

Fifth Class.—The Rector.—Work of the past Year.

Latin.—Rudiments Revised. Melvin's Latin Grammar Revised and Rules for Gender and Prosody committed to memory. Livy, Lib. V. Cicero's Philippics VII., VIII., IX., X. Horace's Odes, Lib. III., and a few of the Epistolæ. Versification—Hexameters, &c.

Greek.—Geddes' Grammar Revised. Arnold's Greek Prose Composition, Part I., pp. 1-80. Xenophon's Anabasis, Lib. IV. and VII., 1-6. Anacreon's Odes, 1-28. In the Optional Class, Xenophon's Hellenics, Lib. III., and Homer's Iliad, Lib. I.

The Exercise for Latin Verse was a translation into Hexameters of the 58th Paraphrase.

Versions were written twice every week, on Tuesdays and Fridays in school ; and two or three exercises were written at home every week, and either examined by the teacher at home, or corrected by the pupils in school.

Geography.—Edinburgh Academy Ancient Geography, the whole except Italy and Greece.

History.—The whole of Smith's Smaller History of Greece.

Private Readings.—Latin—Horace, Odes, Lib. I.; Cicero, Phil. VI. Greek—Xenophon's Hellenics, Lib. IV.; Homer's Iliad, II., 1-300.

Fourth Class.—Mr. Legge.—Work of the past Year.

Latin.—Revised the whole of Dr. Schmitz's Latin Grammar. Revised the rules in Dr. Melvin's Grammar (with special attention to the rules for Prosody). Livy, Book I. Virgil's Æneid, Books I., II., III. Cicero de Senectute, I.—XV.

An English-Latin Version written in school every Tuesday,—examined and explained on the Thursdays, and the boys' places in the class settled by it.

GREEK.—Grammar—§ LXVII. to § XCII., from the formation of the Tenses to the end of the Sections on the Derivation of Words. Xenophon's Anabasis, Book 1., Chapters I. to VII.

A Greek Exercise, written at home, was given in by the boys every Friday, and their places in the class settled by it on the following Monday.

HISTORY.—Dr. Smith's Smaller History of Rome.

GEOGRAPHY.—Ancient Italy and Sicily.

Third Class.—Mr. Still.—Work of the past Year.

LATIN.—Revised Rudiments, and Melvin's Latin Grammar. Studied Chambers' Advanced Latin Grammar.—XLVIII. Geddes' Principles of Latinity. Learned Prosody in Melvin's Latin Grammar. Read Cæsar, B. G., V. 40—58. VI. 1—44. VII. 1—74. Ovid, Met. I., 90—415, and 750—779. Versions two every week—one in school, the other at home.

GREEK.—Geddes' Grammar to the end of the Pronouns.

HISTORY.—Dr. Smith's Smaller History of England, Edward VI. to present time.

GEOGRAPHY.—Anderson's Geography, Asia, Africa, America, Oceania, Palestine.

ENGLISH.—Parts of speech, inflections, analysis of sentences. Read Milton's Paradise Lost, Books III. and half of IV. The greater portion was analysed and parsed.

Second Class.—Mr. Martin.—Work of the past Year.

LATIN.—Jacob's Latin Reader—the Roman History and Ancient Geography translated and parsed. Cæsar B. G., Lib. IV., 20–38; V. VI., 1–5, translated and parsed. Chambers' Elementary Latin Exercises, pp. 71 to the end. Melvin's Latin Exercises, I.—XII. and XVII.—XXIV. Melvin's Latin Grammar—a selection of the Rules for Gender, Anomalous Cases, and comparison of Adjectives committed to Memory. The Rudiments revised. An English Latin Version written in school once a week.

ENGLISH.—Milton's Paradise Lost—most of Book I. read over and explained. Numerous passages analysed and committed to memory.

HISTORY.—Smith's Smaller History—to the reign of Henry VII.

GEOGRAPHY.—Anderson's Geography—the continental countries of Europe.

First Class.—Mr. Beverly.—Work of the past Year.

LATIN.—Ruddiman's Rudiments, the whole, with revisals. Chambers' Elementary Exercises, from beginning to Exercises on First Conjugation. Jacob's Latin Reader, the Fables, and Roman History, Lib. I.

ENGLISH.—Allen and Cornwell's English Grammar—Etymology, with Revisals. Nelson's English Reader, No. IX., the greater part of it read, with Exercises in Spelling, Derivation, &c.

HISTORY.—White's History of Scotland for Junior Classes—from beginning to Union in 1707.

GEOGRAPHY.—Anderson's Geography—Introduction, Outlines of Physical Geography, General Geography of Europe, and Particular Geography of Great Britain and Ireland. The History and Geography were partially revised.

The work of the classes at the date of my visit was very similar to the foregoing, only each class was of course under a different master. The following is a list of the number of boys in each class at the date of my visit and of their average age. It is necessary, when estimating

the value of the above-mentioned work to bear these ages carefully in mind:—

Class.	Number on the Roll.	Number present, June 7, 1866.	Average Age.
V.	67	61	*15·72
IV.	50	41	14·54
III.	69	65	13·86
II.	65	60	13·08
I.	57	54	11·72

It will be observed that Greek is not begun until a boy reaches the third class; that is, not on an average until he is 13 years old.

I now proceed to describe the results of my visit to the school, according to the plan and under the headings proposed at page 5.

I. Cost of the Education.

(*a*) *Public*; (*b*) *Private*.

(*a*) *Public, i.e.*, by endowment or contribution.

I have already explained that the total amount of endowment is from Dr. Dunn's bequest, 160*l.* per annum; from the town council, about 1,020*l.* per annum. There are no other contributions to the school of any kind. The number of boys educated in the school was at the date of my visit about 300. Thus the average public expenditure upon the education of each boy is 3*l.* 18*s.* 8*d.*, of which about 3*l.* 8*s.* 0*d.* or 86 per cent. is borne by the burgh. The cost therefore to the burgh of Aberdeen is only 3*l.* 8*s.* 0*d.* per head for the education of each scholar in its grammar school.

(*b*) *Private, i.e.*, borne by the parent or guardian.

The following is the statement kindly furnished me by the rector, of the private cost of the education in this school, in cases where parents are content to follow the curriculum designed by the school authorities, and to pass their sons through the ordinary five years' course:—

First year, 4*l.* 18*s.* 0*d.* for Latin, English, modern history, modern geography, writing, and arithmetic.

Second year, 4*l.* 18*s.* 0*d.* for the same.

Third year, 5*l.* 8*s.* 0*d.* for the same, along with elements of Greek.

Fourth year, 6*l.* 4*s.* 0*d.* for Latin, Greek, English, ancient history, ancient geography, and mathematics.

Fifth year, 6*l.* 4*s.* 0*d.* for the same.

"If," he adds, "French, German, and drawing be taken, each subject "will cost 2*l.* 2*s.* 0*d.* additional per annum. A class for gymnastics "is taught for three months in the year at a fee of 10*s.* 6*d.* There are "no extra charges."

The above-named fees are reasonable enough for a classical education, and, no doubt, place such an education easily within the reach of all the middle classes of Aberdeen; open out to them a plain road to a liberal

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* This is the average age of the fifth class, according to the Roll. The average age of 60 members of the class who were present and examined by me on June 11th, 1866, was, as returned by themselves, 16·13, so that the average age of boys in the fifth class at Aberdeen Grammar School may be described as about 16.

education; to the Scotch universities; and eventually, if they desire it, by means of the "Snell" Exhibition, tenable at Balliol College, Oxford, and of other well-known exhibitions, to the superior education of an English university. It must, however, be remarked that a boy who takes the above-named course would find some difficulty, owing to the arrangement of time, in studying French, and would, if I am not mistaken, find it almost impossible to study both French and German. This will appear clearly, if I suppose the case of four boys, A. B. C. D. as in my report on Glasgow High School, see page 124. It is of course impossible for these boys at Aberdeen to follow exactly the curriculum which I laid out for them at Glasgow; because, by the regulations of the Aberdeen grammar school, they *must* all learn the classics until the end at least of their third year. But I will make out a course for them as nearly similar as possible to that designed in my report on Glasgow High School, thus:—

A. is in the first class; and is to learn Latin, English, (including modern geography and history), arithmetic, and writing.

B. is in the third class; and is to to learn Latin, Greek, (I do not want this, but cannot avoid it until he has passed through the third class), arithmetic, English (as above), French, and drawing.

C. is in the fourth class (and having reached this may drop his Greek), and is to learn drawing, writing, book-keeping, French, arithmetic, mathematics, Latin, and German.

D. is in the fifth class, preparing for the university, and is to learn classics, mathematics, French, German, and drawing.

Then the following will be the fees and the hours of study:—

A.	Hour.	Fees, per annum. £ s. d.
Writing	9–10	1 4 0
Latin, English	10½–12½	2 14 0
Arithmetic	1–2	1 4 0
Latin, English	2–4	Nil.
Total		5 2 0 For 30 hours' instruction per week.

B.	Hour.		Fees, per annum. £ s. d.
Latin, Greek, and English	9–10.30	—	2 14 0
Arithmetic	10.30–11.30	—	1 4 0
Latin, Greek, and English	11.30–12.30	—	Nil.
Drawing and French, alternate days	1–2	—	4 4 0
Latin, Greek, and English	2–4	—	Nil.
Total			8 2 0 for 32½ hours' instruction per week.

The great advance in cost beyond that of A.'s education is caused by the endeavour to get him taught a modern language, and beginning the study of art. Indeed it will be seen that he can only study French by cutting his period of rest in the middle of the day down to only one half-hour, too small an allowance for a boy of 12 years who has been at work since 9 o'clock, and has to continue till 4 o'clock. Under these circumstances it is not surprising that the French class is thinly attended. As regards drawing also the same difficulties arise; and indeed I should probably find it cheaper and better to send him to the school of art in the evening, where he would be taught *scientifically*, and at 7*s.* 6*d.* a quarter, instead of half-a-guinea.

C.	Hour.		Fees per annum. £ s. d.
Latin - - - - - -	9–11.30	—	2 4 0
Arithmetic and Mathematics -	11.30–12.30	—	1 4 0
French and Drawing (alternate days)	1–2	—	4 4 0
Book-keeping and Commercial English	3–4	—	1 10 0
		Total -	9 2 0 for 27½ hours per week.

Which is more than B. pays for 32½ hours per week. This is because he does not want to learn Greek. If he desired Greek he might have an hour of it from 2 to 3 p.m; but German he cannot learn at the grammar school unless he abandons French, owing to the arrangement of time.

D.	Hour.		Fees, per annum. £ s. d.
Mathematics - - - -	8– 9	- -	1 4 0
Latin - - - - - -	9–11.30	- -	2 4 0
French and Drawing (alternate days)	12– 1	- -	4 4 0
Greek - - - - - -	3– 4	- -	1 0 0
		Total -	8 12 0 for 27½ hours' instruction.

This, considering the quality of the instruction and the area it embraces in ancient and modern literature, is moderate enough; especially with reference to the classics. The fact is the school is designed to be a classical school, and boys who wish to go through a classical course will find here excellent provision for their doing so at little expense. Those, however, who wish for a more modern course of instruction will find that they can obtain it under less onerous conditions elsewhere. Of course a boy reading in the rector's class must do a good deal of work at home by himself, or, as those who can afford it do, with a tutor.

According to these tables, in the supposed cases of four boys, the total annual cost of their education at the Grammar School, Aberdeen, would be as follows :—

	A.	B.	C.	D.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public (*a*) From endowment - -	0 10 8	0 10 8	0 10 8	0 10 8
Public (*b*) Paid by the burgh* - -	3 8 0	3 8 0	3 8 0	3 8 0
Private, paid by the parent (*a*) in fees -	5 2 0	8 2 0	9 2 0	8 12 0
Private, paid by the parent (*b*) in books	0 10 0	0 10 0	1 0 0	1 0 0
Total -	9 10 8	12 10 8	14 0 8	13 10 8

And the average cost of each such scholar's education is 12*l.* 8*s.* 2*d.* per annum.

There is an endowment, administered by the Town Council for the supply of books to poor scholars at the grammar school.

* It must be observed that the greater portion of this expenditure on the part of the burgh is only occasional and temporary, arising from the expenses involved in the erection of the new buildings for the school. Meantime, while incurring these unusual expenses, the burgh withholds all grants for prizes, of which, until shortly before my visit, a large, indeed as it seems to me, an immoderate number was given by the vote of the town council. When this building debt is paid off the cost to the burgh will be considerably less than as stated above.

II. Class of Scholars in the School.

(*a*) *Their Social Condition.*

I have stated that the number of boys on the roll of the school at the date of my visit was 308. The school is not open to girls. The rector informed me that this total of 308 scholars was at that time composed of the following social grades :—

1. Sons of landed proprietors, of country gentlemen	9
2. Sons of professional men, *e.g.*, clerical, medical, writers, advocates, &c.	69
3. Sons of first-class merchants or wholesale traders, *e.g.*, shipbuilders, manufacturers, &c.	52
4. Sons of first-class farmers and superior employés, *e.g.*, overseers, managers, secretaries, &c.	42
5. Sons of second-class merchants, superior retail traders, the larger shopkeepers, &c.	38
6. Sons of inferior retail traders, smaller shopkeepers, small farmers, clerks, and others, with incomes of from 150*l.* to 250*l.* per annum	47
7. Sons of labourers and those in a parallel scale, artizans, mechanics, &c.	51
Total	308

This table may be usefully compared with that for the High School of Glasgow, page 126. It will be seen that no one class predominates here as that of the tradesmen or large shopkeepers does at Glasgow. The Aberdeen school is patronized in almost equal numbers by the professional men, the wholesale traders, and the labourers or workmen, of which last there is said to be not one at Glasgow High School. The cause of the attendance of this large proportion of children of the labouring or a parallel class is, no doubt, partly the excellence of the parochial schools in this part of Scotland, in almost all of which Latin is taught, and which foster among the labouring classes a desire to continue classical education, to go to the university, and to become ministers; and partly the presentation bursaries, which are often given by their patrons to boys or *young men* from the parochial schools. In the month of June a certain proportion of the fifth class always consists of scholars from the parochial schools, who have entered the grammar school for the current quarter only in order to be prepared for the examination for the competition bursaries at the university, which takes place in the autumn. The following table will illustrate this point. It relates to the last 20 scholars admitted on to the roll of the fifth class at the time of my visit :—

Occupation of Parent.	Residence.
1. Minister	Country.	Lodges in town in order to attend school.
2. Small Farmer	Ditto.	Ditto.
3. Ditto	Ditto.	Ditto.
4. Minister	Ditto.	Ditto.
5. Large Farmer	Ditto.	Ditto.
6. Grocer	Ditto.	Ditto.
7. Small Farmer	Ditto.	Ditto.
8. Ditto	Ditto.	Ditto.
9. Labourer	Ditto.	Ditto.
10. Minister	Ditto.	Ditto.
11. Ditto	Ditto.	Ditto.
12. Farmer	Ditto.	Ditto.
13. Ditto	Ditto.	Ditto.
14. Ditto	Ditto.	Ditto.
15. Ditto	Ditto.	Ditto.

Occupation of Parent.	Residence.
16. Newspaper Editor	One mile from the school.
17. Physician	One quarter of a mile from the school.
18. Manufacturer	Half a mile from the school.
19. Merchant	Ditto. Ditto.
20. Minister	Country. Lodges in town.

The majority of these country scholars have received their education at the parochial schools, and were only entered for one quarter, "to receive a final polish before going to college."

(*b*) *The Length of Time they stay at School.*

I have already stated that the average age of the fifth class was at at the date of my visit (that is in the last quarter of the school year, at the season when it is highest), about 16 years. Here, as at Hamilton, the lads who are intended for the professions almost always leave the school and proceed to the University of Aberdeen, or one of the Scotch universities, at about the age of 16 years or under. There are, however, some exceptions to this general rule at Aberdeen grammar school. The following table will illustrate this point. It gives the occupation of the parents of the last 20 boys who had left the school previously to my visit, the age at which each of these boys entered the school, the length of his stay in the school, and his age at removal:—

Occupation.	Age at Entrance.	Time in School.	Age at Removal.
1. Large farmer	13	2 years	15
2. Labourer	15	1 „	16
3. Minister	14	2 „	16
4. Merchant	12	4 „	16
5. Farmer	16	2 „	18
6. Ditto	15	2 „	17
7. Confectioner	11	5 „	16
8. Minister	13	2 „	15
9. Physician	14	2 „	16
10. Manufacturer	12	3 „	15
11. Farmer	12	3 „	15
12. Labourer	17	1 „	18
13. Minister	14	1 „	15
14. Farmer	14	2 „	16
15. Railway contractor	11	5 „	16
16. Grocer	11	4 „	15
17. Farmer	13	2 „	15
18. Minister	12	3 „	15
19. Labourer	16	1 „	17
20. Gardener	15	2 „	17

From the above Table it appears that the average age of admission to the school is about 13½ years. Compare the Tables in Appendix III. page 112, and II. page 94, and see also page 24.

It must be observed that this table was taken just before the end of the last quarter of the school year, so that it does not include any of those boys who had entered for that quarter "to finish." It may be taken therefore as fairly representing the age at which the ordinary scholars of the school, those who get most of their education therein, leave it. And according to this representation the school is, as a middle school, one of the *first grade*. (See my Report on Secondary Education in London,

p. 257.) This is rendered still more evident if the age of the scholars attending during the last quarter be taken into account. When I was examining the fifth class upon paper, I requested each scholar to put at the head of his paper a statement of his present age and the length of time he had been at the grammar school. The scholars were all good enough to comply with this request, and the result was that while the average age of the 60 then examined was only 16·13 years, there appeared to be a much wider difference between the ages of the individual boys than would be found in the highest class of any English public school. Thus of these 60 scholars, six were 20 years old, one was 19, three were 18, six were 14, 11 were 15, 18 were 16, and 15 were 17 years old.

III. Character of the Buildings and Premises.

The buildings are good, and quite worthy of the fine town to which they belong. They are new; were built at the expense of the corporation; and cost I believe, in all, about 15,000*l*. The old grammar school buildings, which were very much inferior in all respects, except that of their central situation, to the new, stood in the middle of the town. The new buildings stand on the north-west side of the town, in a much more open, airy, and healthy situation, and yet within easy reach of the towns folk.

They are built in what is called the "Scotch baronial" style, and contain, besides a fine public schoolroom and gallery for visitors, a library, masters' private rooms, and commodious class-rooms for each year and for each subject taught. The classical work is carried on upon the ground floor, and the mathematics and other modern subjects, except when combined with classics and taught by the classical masters, above on the first floor. There is a fair gravel playground, at one end of which are convenient offices, very well constructed, except in respect of the mode of flushing them, there not being a sufficient pressure of water for this purpose. This, the emptiness of the library, (which contains at present scarcely any books) and a noticeable echo in some of the class-rooms are the main defects of the building, which is, on the whole, highly creditable to the town and superior to the buildings of any London grammar schools for day scholars. One thing which strikes an Englishman here, as in other Scotch schools, is the want of grass playground, and of fives courts, and raquet courts. It does not seem to be contemplated that Scotch boys should play together at their school as schoolfellows; indeed one of the rules of the school (No. 8) says, "As soon as the classes are dismissed, every pupil is required im-" mediately to leave the school and playground, unless permission " to remain be granted by any of the masters."

The following account of the mode in which these buildings were raised has been furnished me by a reliable correspondent, and is, I think, instructive. He is giving a history of the remodelling of the school and its establishment on the existing basis, and he says, "There were other things needed besides the appointment of a new " rector. The building of the school was totally inadequate. A " former attempt to apply the surplus funds in the hands of the " Bridge of Don trustees had failed owing to the opposition of the " county. A local rate proposed by some, would scarcely be " entertained, as it was sure to be rejected by a majority. Under " these circumstances the provost proposed a plan of his own, and " it was ultimately adopted. It was as follows:—Parties favourable

" to the project of creating a new grammar or public school were to " subscribe a certain amount of money according to their means and " inclination. They were, however, not to be called upon to pay " that amount, but only the interest thereon to any of the banks " for a certain number of years, until the town council should have " paid off by yearly instalments the original cost of the building and " purchase price of a new site. The sum annually devoted by the " town council for that purpose is, I understand, 800*l.* a year; " and in about 10 years more the whole debt will be paid off and the " subscribers relieved from any further responsibility. The sub- " scribers in return for their subscriptions were to enjoy certain " privileges, such as nominating, in proportion to the amount of " their subscriptions, one or two free scholars, and they were to have " a vote by themselves or proxy conjointly with the town council " to decide on the site of the new school and the curriculum of " study to be pursued therein, and also to recommend, under the " new arrangement, any new master that might be wanted, who was, " however, to be definitely appointed by the town council. The " new buildings were opened in 1863."

IV. The Quality of the Teaching.

(*a*) *The Qualification of the Teachers, Educational Status, &c.*

All the classical masters in this school, and the mathematical master and his assistant, are graduates (A.M.) of the University of Aberdeen, one of whom, at least, has taken his degree since the new regulations were made by the Scottish University Commissioners in 1861, and obtained high honours in the class lists. My space and time do not permit me to enter into a description of the qualifications implied by the possession of an A.M. degree of this university. The Commissioners will find the provisions in regard to this matter in the 14th Ordinance of the Scotch University Commissioners, dated January 26, 1861. It will be sufficient here to say that the degree is given only after attendance at certain courses of lectures and an examination, which, for passmen, appears to be much more severe and to embrace a greater variety of subjects than that for the ordinary B.A. at Oxford. The subjects for examination in any given year may be seen in the Aberdeen University Calendar, Part II. There can be no question but that these gentlemen are all, in respect of education and cultivation and the possession of sufficient information, well qualified as teachers. Like our own English graduates they have not, of course, received any special training in the art of teaching. The master of modern languages is a foreigner. The drawing master is also master of the school of art, and was, I believe, trained at South Kensington. The rector, previously to his appointment, was examined in accordance with the requirements of Dr. Dunn's bequest. The proportion of classical masters to the number of scholars is decidedly small, according to English notions, about one to every 50 or 60 boys, though larger than in most of the Burgh Schools.

(*b*) *Method of Instruction.*

The rector and all the other teachers were good enough to permit me to visit their classes, to hear the lessons in operation, to listen to their teaching, and to question their scholars. Every one of the staff showed the most perfect readiness to explain and allow me to look into everything; and here, as at all the other burgh schools which I visited, the

teachers were all quite willing to handle their classes and to give the ordinary instruction in my presence; the contrast in this last respect (viz., that of willingness to teach in my presence) between the Scotch masters and our English grammar school masters was most remarkable. I am bound to express my thanks to the rector and to all the teachers of this school for their courtesy, and the assistance they gave me with so much cheerfulness and good-nature in my inquiry.

One of the principal things I have to remark under this heading is, that the intention of Dr. Dunn, as regards the supervision of the whole school by the rector or principal master, is no longer carried out. The rector, if I am not misinformed, does not undertake any supervision of classes other than his own. Consequently each master teaches his class after his own fashion, and as all the classes are very large and each contains boys of very unequal attainments, there are some minor points in the teaching which, it seems to me, might in some of the classes be improved. As, however, I am not now reporting on an English district I shall not particularize more closely these defects, nor state in which classes I especially noticed them. I will only say generally that, while the classical and mathematical masters seemed to me none of them wanting in ability, there were in the case of some of them defects of method which might be remedied. I do not think that the system of permitting each master to work his class without control or supervision, though it follows naturally, and perhaps necessarily, from the method of arranging their payment, is without serious defects. But on this question, see pp. 41–2. The characteristic teaching of the school is the classical and especially the Latin teaching, and the characteristic feature of the Latin teaching is the "Versions" or translations from English into Latin prose. From the very commencement of their education in Latin and Greek, exercises are worked by the boys along with their grammar lessons, and when they have reached a fair standard of proficiency in grammar, passages, such as those in my Papers XI. and XIV., are translated or imitated from the classical authors, and the boys are required and helped to re-translate them. This system has long been pursued at our best public schools, with the further addition to and improvement upon the Scotch practice, viz,, that the boys are afterwards required to learn the original from which the translation has been made by heart. In this respect these Scotch schools seem to me to fall behind our great public schools. They seldom, if ever, make their scholars learn anything by heart. The reason and judgment are cultivated much more perhaps than in English schools. But they might improve and refine their scholarship by committing more of the best models to memory. This system of "Versions" is, however, sadly neglected in our second-rate grammar schools, and in most private middle-class schools where Latin is professed, and they have in this respect, as in many others, much to learn from the Scotch burgh schools. The system of Latin versions was introduced here by a former rector, Dr. Melvin, a name well known in Scotland, and indeed elsewhere, for Latin scholarship, and the same method in reference to Greek was, I believe, developed by Professor Geddes, late rector, and now Professor of Greek in the University of Aberdeen.

I have already observed that there is a very great difference of attainment among the boys in any given class. This is partly due to the want of any control over the classes by the rector, and the consequent practice of moving up all boys *by years*, whether fit for promotion or not; and partly to the system of *presentation bursaries*. Each classical class contained from 50 to 60 boys, and might be roughly divided into three sections; the first, (about 25 boys) containing the good or painstaking boys; the second, (about 25 boys) containing the moderate, idle, or

stupid; and the third, (about 6 or 10 boys) consisting of those who are obviously unfit for the class, owing generally to want of previous education. The bursars, it seemed to me, were not uncommonly to be found in this third section, being almost always below the requisite mark in attainments, and a drag on their classes. In several instances where a boy answered my questions or those of the master very badly, I inquired whether he was a bursar, and almost invariably found that he was.

The mathematical and arithmetical instruction is conducted by an able teacher, but owing partly to want of discipline in his classes, and partly to the want of sufficient encouragement being given to these studies, the standard of attainment in them is decidedly lower here than at almost all the other burgh schools which I visited, and the results of what is taught are not altogether satisfactory. The chief points to be remarked were,—

(1.) The method of teaching was, with the single but highly important exception of *discipline*, decidedly good. The principles of all that the boys were learning were well developed and explained. In studying geometry they were trained from a very early period to work deductions, and thus to exercise their ingenuity as well as the deductive faculties; and generally the style of teaching was decidedly better than that of an average English grammar school.

(2.) The boys are not separately classified for mathematics, but are taught in this school according to their classical years. While attendance in the classical classes is compulsory, that in the mathematical school is voluntary.

(3.) The boys, though not advanced in geometry or arithmetic, are still more backward in algebra. The highest class, classical fifth, could produce very few boys who could work Question 4 in Paper I. properly, and their standard of knowledge seemed to me low, both in Euclid and arithmetic. In algebra, however, they were still more deficient. This deficiency is said to be occasioned by the fact that the university does not require this subject for matriculation, whereas Euclid and arithmetic are required. But more than all, it is occasioned by the neglect of algebra in competition for the university bursaries. (See the Calendar of Aberdeen University, Part II., page 9.) Formerly the examination at these competitions consisted solely of translations from Latin into English. To this have recently been added "Versions" (or translations from English into Latin), translations from Greek into English, and, still more recently, questions in Euclid and arithmetic. Algebra is still unrecognized; and the result is that it *does not pay* to learn it at the grammar school. The following is the number of marks assigned to each subject at this competitive examination, which takes place at the end of October each year :—

	Marks.
English into Latin - - - - - -	400
Latin into English - - - - - -	150
Greek into English - - - - - -	175
English Grammar and Composition - - - -	175
Arithmetic, including Vulgar and Decimal Fractions, and Proportion - - - - - - -	100
Euclid, Book I. - - - - - - -	200
Total -	1,200

Of which one-third is assigned to the "Version" alone, and nearly five-eighths to classics altogether. As a successful *version* alone will win more marks than any amount of arithmetic and Euclid, these latter subjects are naturally neglected. On the whole, the mathematical studies of this school seemed to me to be decidedly inferior to what its position would lead one to expect. The fifth class has five hours a week, and, even

under the present discouraging conditions, might, with firmer discipline, do better. Probably, however, they attend very irregularly. On the day I was present there were only 14 present out of a class of 27; and when this full number of 27 is compared with the number in the rector's class, it will be seen how little, comparatively, mathematics are studied in this school. As young men, trained at the University of Aberdeen, frequently do remarkably well afterwards at Cambridge, I suppose the truth must be that they begin at the University of Aberdeen almost from the very rudiments.

The school of modern languages is very badly attended. At the time of my visit there were only seven boys learning French in the school; and there was none learning German. These seven boys had made good progress in the time during which they had been studying French. These classes are held at a time of day when, I believe, a good many boys get either dinner or luncheon. But this, as my experience in Scotland showed, would not be sufficient to keep Scotch boys from attending, if there were any adequate encouragement to them to do so. The fact that French is not required for the bursary competition is, probably, sufficient to account for the small attendance in these classes. The master appears to be able and very zealous for the improvement of his department; and he is, though a foreigner, a thorough master of English, a point to which I attach great importance. He was good enough to favour me with a large amount of information about the past and present condition of the grammar school, for which I am much indebted to him.

The school of drawing is also very badly attended. The master had at the date of my visit only 15 pupils altogether, and of these only seven were present when I inspected the class. The master is, of course, well acquainted with the system of teaching drawing to which the students of South Kensington are trained, and is himself, if I am not mistaken, a believer in the efficiency of that system. But the severe course is so unpopular that he is unable to pursue it, lest it should drive away the few pupils he has. It is the same case here as in Glasgow High School and almost every other Scotch school which I visited. Art is at a decided discount.

The English school did not appear to me to be very efficient. Nothing is done in it but English grammar and composition, including the analysis of sentences. At the time of my visit I found 14 boys in the senior class; they were all fifth year boys, and all continuing Latin and Greek, except two, one of whom had dropped Latin, and the other Greek.

V.—Effects of the Education.

(*a*) *Attainments of the Scholars.*

From what I have stated, it will, I think, be sufficiently apparent that for the results of the instruction in this school we must look to classical attainments. As regards mathematics, modern languages, and art, the results of instruction in this school are so slight as to be little worth consideration. Moral and physical science, chemistry, and kindred subjects are not attempted. The school is especially a classical school; and its whole strength is thrown into classical instruction. What then is the result?

The rector and the assistant masters were good enough to allow me to question in each class, and I did so orally in all classes, and by paper in the first and fifth. The conclusion I came to was that the work of the classical part of the school is intelligently, soundly, and well done, perhaps not so well as it might be with certain improvements in the system. But that is not here my business. My business is to compare

the results with those of an English grammar school of the first grade. I am not here considering whether the course of education, the main object of which is to get the scholars to write good *versions*, is the best that could be selected for them. I am only considering whether classics are taught with equal, better, or worse results than in those English grammar schools of the first grade which I inspected. I found from my own oral questioning, and that of the masters, that the boys had acquired a very good grasp of the general principles of grammar, and were very accurate in their syntax and grammatical analysis of sentences. This seemed to me to be a characteristic of all the classes which I questioned or heard questioned. I found also that the fifth class was well acquainted with Latin prosody, and, generally, showed a very fair amount of good scholarship, and of acquaintance with antiquities. I gave this class Papers XXI. and XXII. to work for me, and the following was the result of this examination on paper. It will be seen that the class consisted of 60 boys or young men, of the average of 16½ years, and who had been on an average 2½ years in the grammar school. The papers were collected at random, and are numbered in the order in which I happened to revise them. They do not therefore designate any rank in the class or point to the individuality of the scholars. The piece of English to be turned into Latin on Paper XXI. was read out to them in order to test their spelling, and the result is given in number of errors :—

No. of Scholar.	Age (Years)	Time in School.		Errors in Dictation.	Paper XXI., Max. 100.				Paper XXII., Max. 200.			
		Years.	Months		Quest. I. (50.)	Quest. II. (30.)	Quest. III. (20.)	Total.	Quest. I. (*a*) (40.)	Quest. I. (*b*) (60.)	Quest. II-VI. (100.)	Total.
1	20	1	9	2	10	0	0	10	0	0	10	10
2	16	2	6	0	35	16	10	61	20	0	0	20
3	16	3	-	0	35	5	18	58	20	0	45	65
4	15	4	9	0	38	18	16	72	10	0	28	38
5	16	5	-	0	0	0	0	0	0	0	10	10
6	18	2	-	0	38	16	10	64	40	10	20	70
7	15	5	-	0	36	20	0	56	0	0	20	20
8	16	1	6	0	39	25	20	84	abs.	abs.	abs.	abs.
9	17	1	-	0	40	26	12	78	30	0	78	108
10	14	5	-	1	20	12	0	32	0	0	30	30
11	18	-	6	3	35	16	0	51	10	10	50	70
12	20	-	6	0	32	8	0	40	0	0	50	50
13	16	1	6	1	36	10	0	46	10	0	55	65
14	17	1	-	0	30	5	2	37	abs.	abs.	abs.	abs.
15	17	1	-	0	30	0	0	30	20	0	0	20
16	20	-	6	0	38	11	0	49	5	0	45	50
17	16	2	-	0	40	13	0	53	0	0	20	20
18	20	1	-	0	24	7	2	33	abs.	abs.	abs.	abs.
19	15	-	10	1	34	18	0	52	10	0	10	20
20	17	-	2	5	20	12	3	35	0	0	0	0
21	15	1	-	0	40	25	16	81	40	20	0	60
22	20	-	2	0	10	5	0	15	0	0	30	30
23	15	-	8	1	30	10	5	45	0	10	20	30
24	16	2	9	1	22	5	18	45	0	0	35	35
25	17	2	6	0	40	5	15	60	30	0	30	60
26	20	-	6	0	40	20	18	78	20	10	65	95
27	17	-	9	5	40	8	12	60	10	5	0	15
28	16	2	-	0	38	18	10	66	20	10	50	80
29	19	1	3	1	42	26	20	88	30	0	50	80
30	18	-	2	2	42	30	20	92	30	10	80	120
31	17	4	6	3	12	10	0	22	0	0	10	10
32	14	2	-	0	25	30	16	71	20	0	35	55
33	17	2	-	0	30	18	0	48	0	0	20	20
34	14	-	2	0	10	15	20	45	20	0	40	60
35	17	-	9	0	34	10	20	64	10	10	40	60
36	15	-	5	0	25	20	15	60	20	0	30	50
37	16	4	6	0	25	5	0	30	20	10	10	40
38	17	-	11	0	27	10	0	37	0	0	10	10
39	17	2	-	0	20	0	0	20	30	20	30	80
40	16	3	3	0	23	12	20	55	30	20	70	120
41	15	4	-	0	40	25	20	85	0	0	10	10
42	15	2	-	1	32	0	0	32	0	0	0	0
43	16	4	-	0	25	8	0	33	0	0	0	0
44	17	1	-	0	10	0	0	10	abs.	abs.	abs.	abs.
45	16	5	-	1	35	5	10	50	20	0	10	30

No. of Scholar.	Age (Years)	Time in School.		Errors in Dictation.	Paper XXI., Max. 100.				Paper XXII., Max. 200.			
		Years.	Months		Quest. I. (50.)	Quest. II. (30.)	Quest. III. (20.)	Total.	Quest. I. (*a*) (40.)	Quest. I. (*b*) (60.)	Quest. II-VI. (100.)	Total.
46	16	4	6	0	20	12	8	40	0	0	20	20
47	16	3	–	0	40	15	0	55	0	0	20	20
48	16	5	–	0	32	10	8	50	0	0	20	20
49	17	3	–	1	0	0	0	0	abs.	abs.	abs.	abs.
50	15	3	6	0	15	10	15	40	0	0	0	0
51	16	4	6	0	20	0	5	25	0	0	10	10
52	16	2	–	11	0	0	0	0	0	0	0	0
53	14	5	–	1	5	0	0	5	0	0	10	10
54	16	5	–	0	5	0	5	10	0	0	20	20
55	14	5	–	1	40	20	10	70	0	0	5	5
56	15	5	–	0	30	15	15	60	0	0	0	0
57	14	4	6	0	20	10	15	45	0	0	20	20
58	17	2	8	0	30	10	0	40	0	0	10	10
59	15	4	–	0	35	20	20	75	0	0	20	20
60	17	5	–	1	0	0	0	0	0	0	20	20

The handwriting in these papers was only moderate, but the spelling as shown in the exercise from dictation was good. Only 43 mistakes were made among the whole class, of which nearly one-fourth was made by one boy. 41 of them, it will be seen, had no errors. In the Latin prose (Paper XXI. Question 1.), the class, as a whole, got an average of 27 out of a maximum of 50 marks, which result is really creditable, showing a sound knowledge of grammar and good power of applying it. None of the exercises showed much style. There was not one which would be worthy of the first three or four boys at Rugby, Harrow, or Marlborough. I was, therefore, unable to give the full mark (50) to anyone. But it will be seen that two boys got 42 marks, 11 got 40, 23 got 30 and upwards. This Latin prose is not quite equal, as regards individual excellence, to what can be produced by the leading boys at the City of London, Christ's Hospital, Highgate, and other first grade secondary schools which I have seen, but, as a whole, it is better than most of these schools would produce in their first classes ; that is to say, there are fewer real failures than would be found in the first class of one of these English schools. The passages of Livy in Paper XXI. Questions 2, 3, were both unknown to the class. A large number of them broke down in the translation of the passage in Question 2, their average being only 12 out of 30 marks. One boy aged only 14 years and one aged 18, got full marks, and there were 10 others who got 20 marks and upwards. As a whole this work showed less power than the version. The version, though rugged, was grammatical ; and would probably be equal to the best English standard if more of the text of authors were committed to memory as a means of cultivating style. But the translation was often very weak, and would be better done at a London public school of the first grade. The average of the whole class on the whole of Paper XXI. was 47 out of 100 marks, probably a higher average level than a similar school in England would reach. The Greek in Paper XXII. proved to be decidedly beyond their powers. I believe that none of these boys were acquainted with Thucydides at all, their reading having been confined chiefly to Xenophon, Arrian, and Homer. Most of them did the parsing correctly ; and two boys, aged 15 and 18, got full marks for Question 1 (*a*) ; but none of them could at all make out the English of Question 1 (*b*). Their average for the Greek was only 13 out of the maximum of 100 marks, and almost all that was got for parsing. In this work they were inferior to the sixth form of such schools as Christ's Hospital, City of London, Highgate, and the like, and even to some of the second grade grammar schools in London. As regards Questions 2–6 in

Paper XXII. they showed a very fair knowledge of history; getting an average of 23 out of 100 marks in the very wide subject which was there set before them; and there was hardly one case among them of gross blundering or ignorance. Their general information, as judged from this paper, seemed to me to be decidedly superior to that of English boys in a like grade. There was an absence of that gross ignorance and stupidity in such subjects which I had often to remark in London schools, and some boys showed much intelligence.

In conclusion, the verdict must be, that the results of instruction in this school are, when compared with those in our English middle schools of the first grade, as regards classics, superior on the whole, though not equal in point of individual excellence. As regards all other subjects, very greatly inferior. But, as I have remarked, on pp. 28–9, it is not fair to compare this school with English schools of the first grade.

It is right to add that the boys appear to me to come into school very indifferently prepared. The first (lowest) class contained 52 boys, who were new-comers, having been on an average eight months only in the school. They had just been reading with their master, an able teacher and effective disciplinarian, "The Life of Mary Queen of Scots;" and I required them, among other things to write me a short account in their own language of her life. I looked over the work of the first 13 and the last 16 boys in the class, whose age was rather more than 12. Only five could do it creditably; only six others fairly; while all the rest were either quite unable to do anything, or wrote with very bad grammar, phraseology, and spelling; showing a very poor knowledge of their mother tongue. The first class in a National or British school in an English town would have done it much better. They had also an average of two mistakes each in four easy lines of spelling. As the teacher could not yet be responsible for the condition of these boys, I draw from this the conclusion that boys of 12 years of age come to this school very moderately prepared in the elements of English. In this respect, however, this school is certainly in no worse, if so bad, a position as most of our English middle schools.

(*b*) *Tone and Discipline of the School.*

I have already spoken of the want of order in some of the classes. There might also, I think, be some improvement in the order of the boys when out of class, in the corridors and passages of the school buildings. The want of a responsible governing head, or else of an efficient janitor, seems to me to be decidedly felt; and I am sure there is no English middle school of the first grade in London in which so much noise and disorder would be allowed to be made on the premises as are here made by boys out of class. I remarked this especially when engaged in inspecting the French master's class. No. 3 of the Rules and Regulations, approved by the Lord Provost and Town Council, says, "Playing, running about, shouting, or making any needless noise within any part of the building, is strictly forbidden." This rule is evidently a dead letter as regards "shouting and making needless noises."

In other respects I did not remark any want of good tone and behaviour among the pupils. The fifth class was in remarkably good order; and I am much indebted to those young men and boys for the good nature and courtesy with which they received a rather troublesome visitor, and for the pains they took to answer my questions. They appeared, as a rule, to be hard workers, and to enjoy working with their able and judicious rector.

APPENDIX II.—AYR ACADEMY.

Preliminary.

The condition and history of this school are well worthy of the Commissioners' attention, as illustrating some of the most interesting questions in secondary education. The following are the points which seem to me most deserving of attention, viz.:—

(*a*) The school is one of the earliest and most successful examples of the conversion of an ancient burgh school into an academy, combining the endowed with the proprietary character.

(*b*) It affords one of the best examples I know of the effects of a fixed curriculum *offered, but not enforced.*

(*c*) Provision is made for the *education of girls* as well as of boys, not in the same way as that in which it is done either at Hamilton or Inverness, but by a combination of the two systems. The girls are taught in the same classes with the boys until the sixth year of the course of study (when they should be about 12 years old), at which period a separation is made.

The academy of Ayr has existed in its present form for 73 years. It was formed upon the basis of an ancient burgh school, which was, with the consent of the magistrates, incorporated in the new institution. The first prospectus, soliciting subscriptions for new buildings was issued in 1794, and was well supported by the town and county of Ayr. The academy was, however, opened at first in the old burgh school buildings, on the 1st of August 1796, and two years later received a Royal charter. This charter provided, amongst other things, (*a*) that the directors of the academy should consist of *seven* members annually to be chosen from the Town Council of Ayr; of the Sheriff depute of the county of Ayr for the time being; of the nearest male heir for the time being, who should have attained the age of 21 years complete, of a certain deceased donor of 1,000*l.* sterling towards the education of the youth of Ayr; of all subscribers of 50*l.* sterling and their heirs male (the heirs male of individual subscribers of 100*l.* sterling or more being entitled under certain conditions to a double vote); and lastly, of five persons, contributors, who were to be chosen annually by subscribers of sums less than 50*l.* and not under 5*l.*

(*b*) That the functions of the directors should be to elect proper teachers for the various branches of education to be taught in the academy; to appoint such teachers' salaries from the funds of the academy; to elect others in their place after their decease or removal; to form regulations for both teachers and students; and in general to regulate and govern the academy in every respect.

The directors were fortunate in securing as their two first rectors of the new academy men of distinction, one of whom afterwards became Professor of Astronomy in the University of Glasgow, and the other Professor of Natural Philosophy in the University of S. Andrews; and the academy, transferred in 1810 to the new buildings which had been completed at a cost of nearly 3,000*l.*, entered upon a career of considerable popularity and of undoubted usefulness which appears likely to continue unchecked under the direction of the present able and intelligent rector. In their prospectus for the session of 1864–5 the directors say that "as an educational institution, the academy was designed by its "founders to fulfil three distinct objects:—to provide elementary "instruction for the families of a large proportion of the community; "to supply to such pupils as might wish to prosecute their studies at

" any of our universities, preparatory training in most of the subjects " usually taught in them ; and, by means of a curriculum of study some- " what more extended than that of ordinary schools, to afford to those " to whom an university course is either not necessary or not attainable, " some knowledge of the less elementary branches of a liberal educa- " tion." In carrying out these objects, the directors followed the method usually pursued in renovated Scotch burgh schools. They did not prescribe any regular formal course which the pupils of the academy should undertake on entering it ; they made no attempt to dictate to them the number of hours which they should give to this or that study, or even to require them to attend the lectures of any one master. They left them as free as possible to choose what lessons they would take and which masters they would attend; contenting themselves with providing that there should be a properly qualified staff of masters to teach the requisite subjects in a decent public building, whose lectures all might attend on payment of very moderate fees. So far were the directors from forcing the pupils to follow any stated curriculum that for many years it seems they did not even *suggest* to them to do so, but left them to their own devices in this respect. Lately, however, an alteration has been made in this respect. At the time of the appointment of the present rector, it was decided to frame a curriculum which should be offered to all the pupils, but not forced upon any of them, in the hopes that a large number would perceive the advantages to be obtained in regularly pursuing such a course, and would adhere to it. The prospectus of the session of 1863–4 announced this change in the following terms, which I have extracted verbatim from that document, with no other changes than the suppression of certain persons' names, and the addition of certain explanatory notes :—

" For some years past the directors have been anxious to have a regular course of study, extending over a certain number of years, laid down for the guidance of parents and guardians, the details of which, if followed out, would go far to obviate the disadvantages of the present plan.* Various causes have hitherto combined to render the framing of such a scheme a matter of some difficulty; since, though their powers are sufficiently ample, the directors were unwilling to make any change which did not meet, as far as possible, the views of all concerned. Believing the present to be a favourable time to renew the attempt, the committee requested the rector, in February last, to give the subject his early consideration, and, after conferring with his colleagues, to draw up a curriculum suited to the requirements of the institution. This he accordingly did; and laid it, with the necessary explanations, before the stated meeting of the directors in May. In order to fully satisfy themselves and the public, the committee submitted this report to two of H.M. Inspectors of Schools, to whom the directors are indebted for valuable and important services rendered them on various occasions. Both these gentlemen having given it as their opinion that the proposed curriculum, with some additions which have been adopted, was the best that could be framed under the circumstances, it has been resolved to bring it into operation, so far as practicable, next session, subject to such future improvements as experience may suggest ; and an outline of it, together with a time-table for 1863–64†, will be found appended, by means of which parents may at once see the age when pupils ought in general to commence the different subjects of study embraced in it, and the classes that may be taken with advantage at the various stages of their

* These disadvantages are enumerated in the prospectus. The chief of them was the division of kindred branches of English study between two or more masters, which was rendered necessary by the fact that these were the subjects the teaching whereof was remunerative. Thus English geography and composition were taught by the rector : English history and grammar by the English master.

† Further changes in the curriculum and time-table having been effected in 1866, I shall give their results instead of the above-mentioned appendix.

progress. It may be well, however, to state shortly its leading features, and to point out the nature of the proposed changes.

"The English course under the English master, on which a pupil may be supposed to enter at the age of six, will extend over a period of five or six years; the classes for elocution and grammar being open to all who from any cause may wish to attend them for a longer period, or at any subsequent stage. It is intended that the study of grammar should be begun at the commencement of the fourth year; and that elocution should be taken during the sixth. Besides reading, spelling, and grammar,—British history, Bible catechism, &c., will be included in this course.

"Geography and English composition, as supplementary to the same course, will continue, as heretofore, to be taught in the rector's department, the directors deeming it inexpedient for the present to disturb the existing arrangements. But attention is invited to the following changes.

"Hitherto, owing in part to the comparatively high fee of 10*s.* 6*d.* per quarter, it has been usual to postpone taking geography till a later period than is desirable, although it is a subject more attractive, perhaps, than any other to the young, and one in which a child of eight is perfectly capable of receiving systematic instruction, if communicated from a text book and in a manner suited to his years. In future, however, there will be a class of elementary geography, at a fee of 5*s.* per quarter, which pupils entering on the third year of the curriculum may attend, and which will be continued for two years at the same rate. As they ought by that time to have elsewhere acquired some knowledge of grammar, composition may afterwards be profitably combined with geography, and this will be done for an additional fee of 2*s.* 6*d.* The importance of early accustoming the pupil to express his ideas in writing is now generally admitted; but the former fee of 12*s.* 6*d.* per quarter, led, of necessity, to all attempts at this art, except in the exercises prescribed in the grammar class, being put off in most cases much beyond the time at which it is commenced in similar educational establishments. This class will likewise be continued for two years at the fee of 7*s.* 6*d.*

"In consequence of these alterations, what has been long known as the composition class must receive a new designation. Those who will enter it being supposed to have already acquired a knowledge of grammar and geography as well as of the elements of composition, or, if not, having it still in their power to do so, it will become an advanced class for English language, literature, and composition, as well as for geography; and in conducting it instruction will be given in these and all collateral subjects, to whatever extent and in whatever manner the interests of the pupils may seem to require. This class may be taken during such years of the remaining portion of the course as parents may think expedient.

"Religious instruction will also be given by the rector and the English master to the classes more immediately under their care, during every year of the curriculum. This will be so arranged as to include a knowledge of the historical portions of the Old and New Testaments, the topography of the Bible, the evidences of Christianity, &c.

"Arithmetic will be begun at the commencement of the fourth year of the course, and an hour a day devoted to it up to the commencement of the seventh; after which it will be conjoined with algebra. At the same stage and onwards, another hour will be given to geometry, trigonometry, and mensuration; to which will be added in the following year, analytical trigonometry, and during the last two, mechanics, conic sections, and the calculus. Last winter, the mathematical master gave a series of lectures in astronomy to the members of this class, and intends to take up in the same way other sciences such as chemistry, electricity, &c. The directors lately granted him a small sum, to be continued yearly for some time, for the purchase of new apparatus and the repair of the old, in connexion with these lectures, which they deem worthy of every encouragement as the best possible preparation for the natural philosophy and chemistry classes of our universities, and as affording to those students—and they are much the greater number—who do not proceed thither, a more correct knowledge of such subjects than is likely to be gained by mere desultory reading.

"The study of Latin will commence at the beginning of the pupil's fifth year, and be continued for four, five, or six, according to circumstances; Greek being

taken up in the eighth.* Attention will be paid to composition in both languages; and, during the third and fourth years of the pupil's Latin studies, a portion of an hour daily will be given to ancient history and geography, and Roman antiquities. The directors cannot refrain from here expressing their desire to see the ancient classics holding a somewhat more prominent place in Ayr Academy than they have done for many years. It was the almost total neglect of them at the time that led, in 1838, to the suppression of the classical mastership as a separate office; and though it has been otherwise recently, still, judging from the numbers enrolled in other departments, their value as an instrument of intellectual culture is scarcely yet recognized so fully as it deserves. In the case of a boy intended for a commercial life, modern languages may with propriety almost, if not altogether, supersede them during the last two years; but in a truly liberal education, a certain knowledge of Latin is, according to the opinion of those best qualified to judge, an all but indispensable element. To those attending the geography and composition class in the same department, the Latin fee for the first two years will be 5*s.*, instead of 7*s.* 6*d.*

"Pupils may enter the junior French class at the beginning of the sixth, seventh, or any subsequent year, as parents think proper, becoming in the following year members of the senior class. As an inducement to the study of German, and also to the further prosecution of French, the master of modern languages will open a class for a third year's course in French, and a first in German. Those joining it will receive three hours' instruction per week in the former, and two in the latter, for a fee of 12*s.* 6*d.* per quarter; or they may take French alone for 7*s.* 6*d.*, and German for 7*s.* 6*d.*

"Writing ought in general to be commenced in the third year of the curriculum, in some cases earlier, and to continue for six or seven; provision for this has accordingly been made. The book-keeping class from the hour at which it is taught may be attended during any year or years, but the eighth or ninth is recommended. In regard to drawing, the want of classes for which in the academy has been felt for several years, the directors are glad to be able to say that they have made what they are confident will prove a satisfactory arrangement. Experience having shown that at present, at least, the taste for this highly useful acquirement is not general enough amongst the pupils to warrant the appointment of a drawing master, and the absence of late years of all provision for teaching it within the institution having resulted in its being almost entirely overlooked, it has been resolved to combine, as formerly, drawing and writing under one teacher; and the writing master, who has for some years past applied himself to this department of study, has agreed to teach elementary drawing to the pupils of his senior writing classes next session, and to open, in the following year, drawing classes at separate hours for those who have passed through this elementary course. That the elements at least of such an important subject as drawing may be more generally acquired, the former fee of 7*s.* 6*d.* for writing and elementary drawing will be reduced to 6*s.*, while at the same time it will be left in the option of everyone attending the writing classes to take drawing or not. The directors trust, however, that parents will not be slow to avail themselves of what appears a great advantage. Though they cannot enter into further details, they may state in a word that they have fully satisfied themselves of the practicability of the master's plans, and of his qualifications for carrying them out successfully.

"At the commencement of the sixth year of the course, classes for young ladies will be formed in all the departments, at separate hours from those for boys. To the ordinary branches taught in such classes, Latin and mathematics will be added if desired.

"While leaving it optional to parents and guardians to select such portions of the proposed course of study as they please, the directors would earnestly recommend that the leading classes be taken in the order laid down. Much confusion will thereby be prevented, and the pupil's progress greatly facilitated."

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* Thus, on the supposition that the pupil entered the academy at the age of six years, Latin would be begun by him in the eleventh year of his age, Greek in the fourteenth.

My visit to Ayr Academy was made on June 25–27, 1866, while the arrangement thus inaugurated was still in force. But almost immediately after my visit a change was effected, not indeed in the principle but in the detail of this curriculum, and the distribution of subjects among the teachers. The rector, to whose kindness and courtesy I am very greatly indebted, was good enough to forward me the prospectus for the session of 1866–7, in which these changes were announced; and from it I extract the following explanation, which appears to me to be of general interest as illustrating the character and condition of more than one Scotch burgh school:—

"In the working arrangements for next session one important change is to be made. The master, who has successfully conducted the classes for English reading and grammar for upwards of 32 years, having lately signified a wish to retire at the close of the present session on a suitable allowance, the directors have, after mature consideration, resolved to accede to his proposal. In taking this step, they have been partly actuated by a desire to avail themselves of the opportunity thus afforded them of putting the department of English on a different basis. For many years, indeed almost since the establishment of the academy, the subjects of study usually comprehended under that name have been divided in varying proportions between the rector and a colleague. As was to be expected, this arrangement never worked well, often leading to most unpleasant differences, and affecting injuriously and in various ways the interests of both teachers and pupils.

"It is unnecessary to notice all the reasons,—some of them financial, others accidental,—which led to this division of English into two parts, and prevented its being put under one responsible head. The nearest approach ever made to a satisfactory settlement was in 1838, when the academy may be said to have been re-constructed on the principle of a division of the whole subjects taught in the institution into *four* departments:—(1) Ancient and modern languages and geography; (2) English, including grammar, composition, and some simple knowledge of geography; (3) Mathematics and arithmetic; and (4) Writing and drawing. The scheme then adopted has since been departed from in two particulars; in 1845 the rector was authorized to open a class, to be called 'the composition and rhetoric class,' his colleague being henceforth restricted to grammar; and in 1855 modern languages were again made a separate department. By these changes, whatever may have been gained, one of the advantages resulting from the scheme of 1838 was lost, by the teaching of English composition being again divorced from that of English grammar.

"In these circumstances, before coming to any decision on the English master's proposal, the committee appointed to confer with him requested the rector, Mr. Macdonald, to give them his views on the whole question. From his explanation it appeared that all the courses open to them, in the event of their acceding to it, were more or less open to objection. To appoint a successor without any change whatever, would be to continue, perhaps to increase, existing difficulties, more especially if the emoluments be reduced by an annual allowance to a predecessor, which circumstances might afterwards render a burden. Looking to the interests of the present teachers, the union of classics with modern languages is, in the meantime, impracticable, and, had it been otherwise, of doubtful expediency; while, in the absence of suitable endowments, the fees derived from the teaching of Greek and Latin alone would not yield an adequate income to any man possessed of the necessary qualifications. On taking all these circumstances into account, the committee come to the conclusion that it was desirable to remodel the English department without disturbing the existing alliance between classics and English, which is, they believe, beneficial to both; and that the best plan to be adopted was to add the classes for grammar, history, and English reading, hitherto under the English master, to those for composition and geography, at present under the rector; and to appoint two properly qualified teachers, at salaries to be fixed by the directors, to carry on the work under the superintendence of the rector.

"This arrangement has been approved of by a general meeting of directors, to continue in operation during their pleasure. Accordingly, the English and classical departments will next session be conducted by the rector; an English

teacher of attainments and experience; a classical teacher, who will be a graduate, or at least have gone through the curriculum of arts in some of our universities; and two assistants, one of whom will be exclusively, and the other chiefly, engaged in the English department. A sum equal, as nearly as can be ascertained, to the proceeds of the English master's classes, after payment of his yearly allowance, has been fixed on as the salaries of the two additional teachers; and the assistants required for efficiently carrying on the work will be paid for by Mr. Macdonald from the fees of his present classes. Whatever increases above, or diminition below, this sum the matriculation book may afterwards show, will be dealt with as the directors may determine.

"The advantage to be derived from uniting all the English branches under one head master, who will carry out the same method of instruction from beginning to end of the course, is very obvious. With no conflicting interests to regulate their distribution, the pupils can be classified in the manner most advantageous to themselves, and most conducive to the interests of the institution as a whole."

Then follow the outline of the course of study comprised in the curriculum, the time-table, and the scale of fees as they are at present fixed. It must be distinctly understood that this course is only *suggested* to the pupils, not enforced. The classes may still as heretofore be attended singly, or separately; nor is there here any such reduction of the fees to those taking the course as is offered at Inverness. The pupils are simply *invited* to follow this curriculum; but the result is that almost all of them do follow it.

Outline of the Course of Study and Time Table.

First Year (age 6 or 7).	
English—Reading, Spelling, and Oral Lessons in Scripture History	10 to 12
Do. —Reading, Spelling, and Object Lessons	1 — 2
Second Year (age 7 or 8).	
English—Reading, Spelling, and Bible Lessons	10 — 12
Do. —Reading, Object Lessons, and Outlines of Geography*	1—2 or 3
Writing, if desired	3 — 4
Third Year (age 8 or 9).	
English—Geography and Outlines of History	10 — 11
Do. —Reading and Spelling; Bible and Catechism	11 — 12
Writing	1 — 2
English—Reading, Spelling, and Outlines of Grammar*	2 — 3
Fourth Year (age 9 or 10).	
Arithmetic—Simple Rules	9 — 10
English—Geography and History; Reading and Spelling	10—11 or 12
Writing	1 — 2
English—Reading and Spelling; Bible and Catechism	2 — 3
Do. —Grammar and Writing to Dictation	3 — 4
Fifth Year (age 10 or 11).	
Arithmetic—Compound Rules, Reduction, &c.	9 — 10
English—Geography, History, and Outlines of English Composition	10 — 11
Writing and Elementary Drawing	11 — 12
Latin†—Dr. Wm. Smith's *Principia Latina*, Part I	1 — 2
English—Reading and Spelling; Bible and Catechism	2 — 3
Do. —Grammar and Writing to Dictation	3 — 4

* Without separate fee.

† Pupils in Latin will receive, for the first two years of their course, additional instruction during some of their English hours.

Sixth Year (age 11 or 12).

English*—Advanced Reading and Principles of Elocution; Scripture History and Catechism	9 to 10
Do. —Modern or Ancient Geography and History, and Exercises in Composition	10 — 11
Writing and Elementary Drawing	11 — 12
Latin†—Dr. Wm. Smith's *Principia Latina*, Parts I. and II.	1 — 2
Arithmetic—Simple and Compound Proportion, &c. (Barnard Smith's Arithmetic)	2 — 3
English*—Grammar, Analysis of Sentences, and Writing to Dictation	3 — 4

Seventh Year (age 12 or 13).

Latin—Grammar, Cæsar, Ovid, Arnold's Latin Prose Composition, Part I.	9 — 10
Writing and Elementary Drawing	10 — 11
English—Scott and Cowper; Grammatical Analysis of Sentences; Composition; Ancient and Modern Geography and History; Outlines of Physical Geography; Scripture History and Topography	11 — 12
Mathematics—Geometry, Trigonometry, and Mensuration	1 — 2
Arithmetic—Vulgar and Decimal Fractions, &c.; Algebra—Elementary Rules	2 — 3
French—Hall's First French Course	3 — 4

Eighth Year (age 13 or 14).

Writing (or Book-keeping‡)	8 — 9
Latin—Revisal of Grammar, Sallust, Virgil, Arnold's Prose, Part I., &c.	9 — 10
Arithmetic—Higher Commercial Rules; Algebra—Fractions, Simple Equations, &c.	10 — 11
English—Outlines of English Literature; Milton and Shakspeare; Composition; Modern and Ancient History; Physical Geology; Scripture Knowledge	11 — 12
Mathematics and Natural Philosophy—Geometry, Analytical Trigonometry and Astronomy	1 — 2
French (or Drawing)—Grammaire des Grammaires, by De Fivas; and Beautés des Ecrivains Français, by De Fivas	2 — 3
Greek (or Drawing)—Grammar, Xenophon	3 — 4

Ninth and Tenth Years (age 14 to 18).§

Latin — Livy or Cicero and Horace; Composition in Prose and Verse; History, Antiquities, &c.	9 — 10
Arithmetic—Principles, Higher Rules, and Miscellaneous Exercises; Algebra—Surds, Equations, Series, Combinations, &c.	10 — 11
English—History of the Language and its Literature; Milton or Shakspeare; Elocution; Theory and Practice of Composition; Elements of Geology, Zoology or Botany; Scriptural Knowledge	11 — 12
Mathematics and Natural Philosophy—Mechanics, Conic Sections or Diff. and Int. Calculus; Chemistry and Electricity	1 — 2
Drawing	2 — 3
Greek—Grammar, New Testament, Homer, Herodotus, Sophocles, &c.; Arnold's Greek Prose Composition, Part I., &c.	3 — 4
French and German‖—Ahn's Method	4 — 5

* Pupils not attending the Latin and French classes may receive instruction in English reading and grammar at these hours during any subsequent year of the course.

† Pupils in Latin will receive, for the first two years of their course, additional instruction during some of their English hours.

‡ From the hour at which it meets, this class may be taken in any year that parents may deem most suitable.

§ Pupils desiring it, may receive additional instruction in Latin during those years.

‖ From the hour at which it meets, this class may be taken in any year that parents may deem most suitable.

Young Ladies' Classes.*

(At separate hours from those for boys.)

Sixth Year (age 11 or 12) up to which period the girls are taught in mixed classes with the boys.

English—Advanced Reading and Principles of Elocution; Grammar and Writing to Dictation; Scripture History and Catechism	10 to 11
Arithmetic—Simple and Compound Proportion, Practice, Simple Interest, &c. (Barnard Smith's Arithmetic)	11 — 12
French	1 — 2
English—Geography and History; Composition and Analysis of Sentences	2 — 3
Writing and Elementary Drawing	3 — 4

Seventh Year (age 12 or 13).

Drawing	9 — 10
English†—Advanced Reading and Principles of Elocution; Scott or Cowper; Writing to Dictation; Grammar; Scripture History and Topography	10 — 11
Arithmetic—Vulgar and Decimal Fractions, Compound Interest, Discount, &c.	11 — 12
French	1 — 2
English—Ancient and Modern History; Physical Geography; Composition; and Grammatical Analysis of Sentences	2 — 3
Writing and Elementary Drawing	3 — 4

Eighth and Ninth Years (age 13 to 17).

Book-keeping	8 — 9
Drawing	9 — 10
Arithmetic—Principles and Higher Rules; Algebra—Geometry and Mensuration, if desired	11 — 12
French and German	1 — 2
English—History of the Language and its Literature; Milton or Shakspeare; Elocution; History; Theory and Practice of Composition; Elements of Natural History; Scripture Knowledge	2 — 3
Writing	3 — 4

Table of Fees.

	Per Quarter. s.	d.
English Department.		
English Reading, &c., Junior { First two years	5	6
English Reading, &c., Junior { Subsequently	6	0
Do. Advanced, or Elocution	7	6
English Grammar	7	6
Reading, &c., and Grammar if taken together	10	6
Geography	5	0
Do. with Elements of English Composition	7	6
English Language, Literature and Composition, and Geography	12	6
Classical Department.		
Latin	7	6
Do., with Modern Geography and Elements of English Composition	12	6
Greek	7	6
Mathematical Department.		
Arithmetic, Junior	5	0
Do. Senior	6	6
Geometry and Higher Mathematics	10	6

* Young ladies desiring it, will receive instruction in Latin during the hours for English, without a separate fee.

† Or any subsequent year.

	Per Quarter.
Writing and Drawing Department.	*s.* *d.*
Writing—Plain and Ornamental - - - -	- 5 0
Book-keeping - - - - - - -	- 7 6
Writing and Elementary Drawing, in one hour, Junior - -	- 6 6
Do. do. do. Senior - -	- 7 6
Drawing, alone - - - - - - -	- 12 6
French and German Department.	
French - - - - - - - -	- 10 0
German - - - - - - - -	- 15 0
French and German, in one hour - - - -	- 12 6
Advanced French Class, three hours a week - - -	- 7 6
German, two hours a week - - - - -	- 7 6

Matriculation Fee, 2*s.* 6*d.* per session. The session covers 43 weeks in the year; so that there are only about nine weeks of vacation allowed in the year.

I.—Cost of the Education.

(*a*) *Public Cost.*

The endowment of this school, strictly speaking, or according to English notions of an endowment, consists only of two bequests, amounting together to the sum of 50*l.* per annum, for the education of 16 free pupils, called the Dconholm and Pinmore bequests. The amount contributed by the directors is, however, here, as elsewhere in Scotland, reckoned as endowment, though the sum of it is variable and depends upon the decision of living persons. The amount paid by the directors in 1866 was only 135*l.* 15*s.* 0*d.* This makes the total public cost of the education given in this school to be 185*l.* 15*s.* 0*d.* per annum.

At the date of my visit the number of pupils on the roll of the school was, boys 267, girls 123, total 390. Taking the average attendance of boys and girls together to be about 350, we shall find the *annual public expenditure* on each scholar in the school to be on an average about (185*l.* 15*s.* 0*d.* ÷ 350) 10*s.* $7\frac{3}{7}$*d.*, a sum which merits comparison with the amount of endowment of many of our English country grammar schools.

(*b*) *Private Cost.*

The scale of fees has been already given. I was informed that the total amount of fees paid by the scholars in the financial year ending May 1866 was about 1,600*l.* This, divided among 350 scholars, gives us an average private cost of about 4*l.* 11*s.* $5\frac{1}{7}$*d.* per scholar annually. But as it is clear, from a study of the curriculum as compared with the scale of fees, that the cost of following that curriculum amounts to more than this sum for boys or girls even in the junior years, and to considerably more in the senior years, it will be well to make a calculation based, as in my report on Inverness, on the supposition that that curriculum is followed. According to this calculation the private cost of education in the Ayr Academy may be thus stated :—

A is a boy 10 years old, B is a boy 12 years old.
C „ 14 „ D „ 16 „

Suppose these boys to follow the course laid down for them by the directors, viz., A the 4th year's course, B the 6th, C the 8th, D the 10th, then the following will be the fees and the hours of study :—

A.	Hour.	Fees per annum. £	s.	d.	
Arithmetic	9–10	— 1	0	0	
English Geography, &c.	10–11	— 1	0	0	
Writing	1– 2	— 1	0	0	
English Reading, &c., and Grammar	2 – 4	— 2	2	0	
Total		5	2	0	For 30 hours' instruction per week in Arithmetic, English, and Writing.

B.	Hour.	Fees per annum. £	s.	d.	
English (Geography, History, Composition, and Scripture)	9–11	— 3	0	0	
Writing and Elementary Drawing	11–12	— 1	6	0	
Latin	1– 2	— 1	10	0	
Arithmetic	2– 3	— 1	0	0	
English (Grammar, Dictation, &c.)	3– 4	— 1	10	0	
Total		8	6	0	For 36 hours' instruction per week in Arithmetic, English, Latin, Writing, and Drawing.

C.	Hour.	Fees per annum. £	s.	d.	
Book-keeping	8– 9	— 1	10	0	
Latin	9–10	— 1	10	0	
Arithmetic	10–11	— 1	6	0	
English (Literature, History, Composition, &c.)	11–12	— 2	10	0	
Mathematics and Natural Philosophy	1– 2	— 2	0	0	
French	2– 3	— 2	0	0	
Writing and Drawing	3– 4	— 1	10	0	
Total		12	6	0	For 42 hours' instruction per week in the above subjects.

D.	Hour.	Fees per annum. £	s.	d.	
Latin	9–10	— 1	10	0	
Arithmetic and Algebra	10–11	— 1	6	0	
English (Literature, History, Composition, &c.)	11–12	— 2	10	0	
Mathematics and Natural Philosophy	1– 2	— 2	0	0	
Drawing and Painting	2– 3	— 2	10	0	
Greek	3– 4	— 1	10	0	
French and Greek	4– 5	— 2	10	0	
Total		13	16	0	For 42 hours' instruction per week in the above-named subjects.

Again E is a girl 10 years old; F is a girl 12 years old;
G „ 14 „ H „ 16 „

Suppose E to follow the fourth year's course, F the sixth, G the eighth, and H the tenth, as laid down by the directors; then the following will be the fees and hours of study:—

E the same as in the case of A (supra).

F.	Hours.	Fees per annum. £ s. d.	
English (Reading, Grammar, Scripture, &c.)	10–11	2 2 0	
Arithmetic	11–12	1 0 0	
French	1– 2	2 0 0	
English (Geography, History, &c.)	2– 3	1 10 0	
Writing and Drawing	3– 4	1 6 0	
Total		7 18 0	For 30 hours' instruction per week in the above subjects.

G. and H. (identical).	Hours.	Fees per annum. £ s. d.	
Book-keeping (if desired)	8– 9	1 10 0	
Drawing and Painting	9–10	2 10 0	
Arithmetic, Algebra, and Geometry	11–12	3 6 0	
French	1– 2	2 0 0	
English (Literature, History, and Composition)	2– 3	2 10 0	
German	3– 4	3 0 0	
Total		14 16 0	For 36 hours' instruction per week in the above-named subjects.

From the foregoing calculations it will appear that the total cost (public and private) per head per annum of the education of four such girls and four such boys in the academy of Ayr, according to the directors' curriculum, is as follows :—

Cost.	Boys.								Girls.							
——	A.			B.			C.			D.			E.			F.			G.			H.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
I. Public: from bequest or funds at the directors' disposal	0	10	7½	0	10	7½	0	10	7½	0	10	7½	0	10	7½	0	10	7½	0	10	7½	0	10	7½
II. Private: paid by parents.																								
(*a*) Fees for instruction	5	2	0	8	6	0	12	6	0	13	16	0	5	2	0	7	18	0	14	16	0	14	16	0
(*b*) Books, &c. (about)	0	10	0	0	10	0	1	0	0	1	0	0	0	10	0	0	10	0	1	0	0	1	0	0
(*c*) Matriculation fee	0	2	6	0	2	6	0	2	6	0	2	6	0	2	6	0	2	6	0	2	6	0	2	6
Total	6	5	1½	9	9	1½	13	19	1½	15	9	1½	6	5	1½	9	1	1½	16	9	1½	16	9	1½

II.—Grade of Scholars.

(*a*) *Social Position and Occupation of their Parents.*

The rector informed me that the 390 scholars on the roll in June 1866 were divided among the following social classes :—

Children of	(1) Landed proprietors	8
,,	(2) Professional men	64
,,	(3) Merchants, or wholesale producers	30
,,	(4) Large farmers, superior employés, secretaries, managers, &c.	71
,,	(5) Second class merchants, superior retail traders, large shopkeepers, &c.	112
,,	(6) Inferior retail traders, and inferior employés, *e.g.* clerks, warehousemen, and small shopkeepers	80
,,	(7) Artizans, labourers, and others of a parallel social grade	25
	Total	390

These children, it will be seen, belong to what would be considered in England a genuine middle-class population, the children of shopkeepers and clerks constituting together nearly 50 per cent. of the whole number on the roll, exclusively of those of professional men and large farmers, &c.

The following table illustrates this same question; it gives the occupation of the parent, age at admission, and locality of the residence of the last 20 boys and girls admitted on to the roll of the school in June 1866 :—

No.	Sex.	Occupation of Parent.	Age at Admission.	Residence.
1.	Boy.	Clergyman	7 years	Quarter of a mile.
2.	Girl.	Merchant tailor	12 „	Half „
3.	Boy.	Officer in army	12 „	*Quarter „
4.	„	„	10 „	* „ „
5.	„	Farmer	16 „	* „ „
6.	„	„	14 „	* „ „
7.	„	Bankers' agent	16 „	One mile.
8.	„	Lawyer	16 „	200 yards.
9.	„	Clergyman	11 „	Quarter of a mile.
10.	„	„	9 „	„ „
11.	„	„	8 „	„ „
12.	Girl.	Farmer	14 „	Five miles.
13.	„	„	13 „	„
14.	Boy.	Warehouseman	12 „	Half a mile.
15.	„	Shopkeeper	12 „	Two miles.
16.	„	Captain of a merchant ship	11 „	Half a mile.
17.	„	Retail trader	16 „	*Two miles.
18.	„	Wholesale trader	13 „	*One mile.
19.	„	„	9 „	* „
20.	„	Bank agent	6 „	Quarter of a mile.

The residences of those marked with an asterisk * are not their own homes, but temporary residences, either in lodgings or with friends, for the purpose of attending school, their homes being at a distance. I was informed that 67 scholars altogether—viz., 50 boys and 17 girls, lodge in Ayr away from their homes for the purpose of attending the school. I regret that I was unable to obtain precise and accurate information in reply to my inquiries as to the length of time during which children in the Ayr Academy remain at school. Here, as at other burgh schools in Scotland, the registration was not sufficiently minute and accurate to furnish these particulars. It will, however, be observed that the *classical* course is calculated for five or six years at Latin and two or three years at Greek, and I was informed that it is very rare for boys to exceed the fifth year at Latin or the second at Greek. Similarly the course of arithmetic is calculated for six or seven years, and that of algebra for three or four years. There were in June 1866 only two boys in the seventh year of arithmetic, and the same number in the third year of algebra. From this it would appear that the boys generally leave school at the age of 15 or 16. In the course of my examination of the children I got them to put down their ages on the papers they worked for me, and from this it appeared that the average age of the fifth year classical scholars was $15\frac{1}{3}$ years, and that they had been in the academy on an average $5\frac{3}{8}$ years. The girls appeared to stay less time in the school and to leave when somewhat younger. The average age of the first French class of girls was only 14 years, and they had been on an average only two years in the school.

III.—Character of the Buildings.

The buildings of this academy are of a plain but substantial character, and do not appear to afford any points worthy of particular remark.

IV.—The Quality of the Teachers.

(*a*) *Educational Status.*

The staff of this school consisted, at the date of my visit, of a rector (M.A. Aberdeen), assisted by a student of Aberdeen University and a trained certificated schoolmaster, a mathematical master (M.A. Aberdeen), a master of modern languages (a Scotchman who has resided abroad), an English master, and a master for writing, drawing, and book-keeping. There were also several assistants in the different departments.

Some changes have taken place in this arrangement since June 1866, in accordance with the decision of the directors already mentioned, whereby the principal English mastership has been suppressed, and the whole of the English teaching as well as the classical instruction has been placed under the care of the rector, who has four assistants, one of whom is a graduate (M.A.) of Aberdeen. The rest of the staff remains, I believe, unchanged.

The rector and other principal teachers receive, as I was informed, on an average, about 300*l.* per annum from the school; the assistants about 70*l.* The authority of the rector over the other principal masters is little more than nominal.

(*b*) *Teaching.*

The directors and rector were good enough to permit me to listen to the teaching in each class, that of the rector himself included. I was most favourably impressed with the result, as a whole. I heard the teaching of the first, second, and fifth years in Latin. The first year scholars were well worked in exercises along with the grammar, thus learning from the very commencement to apply the rules, and this principle is followed throughout the course. The second year scholars were reading a book of extracts, chiefly from Cæsar, by a German editor; the third year was reading Cæsar and Ovid; the fourth Virgil; and the fifth Horace and Cicero in Latin, Herodotus and Homer in Greek. The two lower classes (first and second years in classics, fifth and sixth in the general curriculum) were evidently very well grounded, and it struck me that decided progress had been made in this short time. One interesting feature of the second classical year (sixth in the academy) was a fairly large class of girls learning the same Latin as the boys. The fifth year (boys) translated from Horace Odes, Book III., very creditably. They showed much thought and real hard work, and more *taste* than I should have expected. I was surprised that they seemed to work so much *con amore*, as if they were giving their hearts to it. There was no necessity for *driving* them; they seemed most anxious to learn, and only to require *leading*. The rector used Orelli's edition, and they remembered really well what he had told them. The contrast with English boys, sitting mechanically round a classroom, all their best energies given to cricket and nothing but the dregs left for the teacher, was most striking.

The arithmetical and mathematical teaching seemed to me good. The boys in the third year's algebraical course were well advanced in quadratics, and their back work (fractions, &c.) was very sound. The Euclid

was exceedingly well done. The first year had done three books, knew them thoroughly, and could say them orally, and the second and third years were reading the sixth book and could do deductions.

I was not favourably impressed with the teaching of modern languages. They are begun later in the course, with reference to the classics, than seems to me advisable, and the method of teaching adopted is more suitable for the rapid acquirement of a slight superficial knowledge than for really sound progress. The pupils are commenced on Hall's course (which is something like Ahn's method) and are carried for a year through this before commencing any grammar. It would be better to use a good grammar with concomitant exercises.

There was an amount of life, vigour, and really hard work evident throughout the school, which was decidedly striking to an Englishman.

V.—Effects of the Teaching.

(*a*) The results of the two days' examination which I made of the classes confirmed the favourable impression I had derived from listening to the teaching. The fifth year classical scholars, besides their oral examination, took Paper xxi. having the English passage dictated to them as an exercise in writing and spelling. Their handwriting was good, and so was their spelling. One boy had two mistakes in this and all the rest were correct. Considering their age, only $15\frac{1}{8}$ years, they did the piece of Latin prose better than I expected making an average of 20 out of the 50 marks in question 1. In question 2 the unseen passage from Livy, an author with whose style of writing they were entirely unacquainted, they made only an average of 12 out of the 30 marks allowed; but this was, I think, quite as much as could be expected from their age. One boy, age 14, mastered the passage thoroughly. He had been $4\frac{1}{2}$ years at the academy and all that time in the Latin classes. In question 3 they made an average of $9\frac{3}{8}$ out of the 20 marks allowed. The results on the whole were decidedly satisfactory for their age and length of classical training. Paper xxii., which I gave to the highest Greek class, proved to be quite beyond their powers. They had only been four years in Greek, and had never seen any Thucydides before. The second and third year mathematical scholars, besides working orally, took Paper x. and showed very good results of their instruction. Their average age was only $15\frac{1}{4}$ years. The highest French class, 7 boys and 8 girls, took Paper xix.; but the first three questions proved to be quite beyond them.

(*b*) The order, discipline, and tone of the school were most satisfactory in all the classes. Nothing could exceed the apparent zeal and eagerness of the boys about their work, and they all seemed positively to enjoy being questioned.

APPENDIX III.—EDINBURGH HIGH SCHOOL.

Preliminary.

The High School of Edinburgh is one of the most celebrated educational establishments in Europe. It was originally attached to the neighbouring monastery of Holyrood, and taught by the friars of that monastery. The earliest mention of the grammar school of Edinburgh (according to Dr. Steven in his history of this school) occurs in the town-council records for the year 1519, when the civic authorities enjoined all parents and guardians, under pain of a heavy fine, to place their youth under the master of the principal school. Until the year 1566 the patronage of this grammar school was vested in the Abbot of Holyrood; but in that year the magistrates of the burgh obtained from the Queen a gift of its patronage along with all other patronages and endowments belonging to the Dominican and Franciscan monasteries in Edinburgh. Having obtained the patronage of the school, the corporation erected in the year 1578 a school-house in the garden of Black Friars' Monastery. This was the second building made for this school by the corporation, though the magistrates had not previously to this time the patronage of the school; but ever since that time the magistrates of the burgh have remained patrons of the school. Since that, two other buildings have been erected by the corporation of Edinburgh for their school, viz., one in Infirmary Street, occupied from 1777 to 1829, and the last on the Calton Hill, which is the present school. Originally the school was intended to be an elementary seminary for logic and philosophy, as well as of classical learning; but of these subjects only classics were ever actually taught. As the High School of Glasgow is prior in the date of its foundation to the university of that town, so the High School of Edinburgh is older than the university. The greatest interest in their school appears always to have been felt by the patrons. They were constantly trying to protect, encourage, and stimulate it. On several occasions they made ordinances forbidding the keeping of private schools in the town, and requiring the citizens to send their sons to the High School. The following extract from their minutes is given by Dr. Steven (Hist. of the High School, page 71) as an example:—"The council finding, amongst many "other laudable acts in their book of register in favor of their public "school, commonly called the High School, that it is specially provided "by several acts, that no person or persons teach Latin or grammar "within the city of Edinburgh or liberties thereof, except the masters "of the High School only; as also none living within the town shall "send their children without the gates thereof to be taught. And "finding likewise that now of late several do notwithstanding teach "both within the city and suburbs thereof as to the public loss and "detriment of the city, so likewise to the discouragement and over-"throw of the High School; they have constituted, appointed, and "ordained, like as by these presents they do appoint, constitute, and "ordain that no person or persons, upon any pretension whatever, do "or shall teach grammar within the said city or liberties thereof, except "the schools of Leith, Canongate, and the Readers' School of West "Port, to the prejudice of the High School; and that no inhabitants "of the said city having their children living with themselves send "them to Bristo, or any other places adjacent to or within the liberties "of the city, to be taught; with certification, that whoever shall offer, "in contempt of this new act, to teach within the city or suburbs "thereof, shall, besides personal imprisonment, be fined at the discretion

" of the then present magistrates, and that whosoever parents having " their children at home with themselves shall send them to any " adjacent place without the city or suburbs thereof to be taught Latin " shall pay quarterly to the master of the High School as much as " other scholars of the like quality usually are accustomed quarterly to " pay. And to the end that this act may find the more ready obedience, " it is hereby likewise statute and ordained that the master of the said " High School, or any of his doctors authorized by him, have power from " the magistrates to command any two or more, if need be, of the town " officers to apprehend and imprison such who by their contumacy and " disobedience shall be found guilty of the breach thereof. And this " act to continue during the council's pleasure."

The patrons were also always extremely solicitous and careful in the appointment of rectors and masters (or "doctors" as they were anciently called) in the High School (see page 43), and, generally, have throughout the history of their patronage to the school shown themselves to be liberal and judicious administrators. At the very time of my visit to the school they were taking advantage of the vacancy in the rectorship to reconsider the system on which the school is at present worked. The number of scholars attending the school had fallen off, and there were complaints among the mercantile portion of the parents that the teaching was too exclusively classical, and that there was a want of system and due control in the administration of the school; and an education committee of the town council was engaged in considering what improvements were required, and how they should be effected. I read a large quantity of correspondence in the "Scotsman" and other public papers on the subject, as well as some documents which were drawn up by one of the most active of the committee; and it seemed to me that that body was investigating and treating the subject with much care and intelligence.

I have stated that this school was originally a "grammar school." Like that of Aberdeen it was designed for the teaching of grammar, and especially of Latin; but I gather from what I learn of the history of the school that the study of Greek has been in force here longer than in the grammar school of Aberdeen: and the public teaching in this language is still, according to the programme, somewhat wider in range than at Aberdeen. For example, the boys in the fifth and sixth classes at Edinburgh were acquainted with Thucydides; and some of them were able to decipher the English of an unseen passage in that author, whereas the pupils in the fifth class at Aberdeen were not acquainted with the peculiarities of his style and diction, and were consequently unable to translate from his history at sight.

While, however, several modifications on the original construction of this school have taken place, it still remains the most strictly classical of any of the nine burgh schools that I visited, except Aberdeen grammar school (see page 66). It is true that provision is now made for the teaching of arithmetic and mathematics, French, German, and drawing. But the characteristic feature of the school is still the classics. All pupils of the school must enter to Latin, and must when they reach the third class also take up Greek: whereas arithmetic, modern languages, mathematics, &c., are treated as extra and optional subjects. As at Aberdeen, the classification of the school is all made upon the classical arrangement; and in one respect this school is even less modern in its provisions than that of Aberdeen, in that there is no separate teacher of English, but the teaching of English is in the hands of the classical masters. The course of instruction here is supposed to last six years; that is one year longer than at any other burgh school which I visited,

(see page 24), and the pupils are divided into six classes on the supposition that they will spend a year in each class. As a matter of fact, those who go through the whole course do always spend just a year, neither more nor less, in each class. For the system of promotions in force in Aberdeen and in Glasgow (see pages 66, 128) obtains here also, and is I believe hardly ever (if ever) broken through. Boys are indeed examined on their first application for admission to the school that it may be seen whether they are qualified to enter the class of that master under whom they wish to be. But from the very wide difference found to exist between the qualifications of boys in the same class, I gather that this examination is not a very serious affair. As a general rule, however, boys who enter the school begin in the first class, that is the first year of the course, and go straightforward through the five years. Although provision is made for a sixth year in this school I do not think that many boys stay so long. From the table on page 116 it will be seen that when I examined the fifth and sixth classes, which was at the close of the session, I only found one sixth year boy among them. I gather, therefore, that, as a matter of fact, the provision for a sixth year is almost as inoperative here as it proved to be in Aberdeen (page 68); that the sixth class boys may be really regarded as only an upper division of the fifth year's pupils; and that it would not be incorrect to say that, with some few exceptions, the Edinburgh High School course is a classical course lasting five years, with certain additional provision for instruction in modern languages, mathematics, and drawing. Here, as in Glasgow and Aberdeen burgh schools, there is no provision for instruction in natural science.

As most of the boys enter at the beginning of the course, the number admitted in any year depends to a certain extent on the popularity of the master who happens to be taking the first class. For here the same system precisely of rotation of masters is pursued as that already described by me in the Appendix on Aberdeen grammar school (page 67): the rector, as there, taking always the fifth year's pupils, and the other masters rotating below him. Thus, as all the boys are promoted, or moved forward, at the end of each year, each master carries forward the same pupils with him in his progress from the first to the end of the fourth year's course, at the conclusion of which he hands them over to the rector to enter upon the fifth year's course. This rotation of the masters is, of course, partly rendered necessary by the mode in which they are paid. They receive a most trifling salary from the burgh, and depend for their maintenance chiefly on the fees of their pupils. Hence (for reasons stated in the Appendix on Aberdeen grammar school, page 66) it is almost unavoidable that the masters should rotate, and that all the boys should be promoted at the year's end. This system of promotion, which is most peculiarly Scotch, is condemned by the late rector in his report for the session ending July 1865, as inflicting "an injury on many boys and on the character of the whole school." On the other hand the custom was defended to me by at least one of the ablest masters in the school, on the ground that less evil comes from it than that which arises from the hopelessness, loss of interest, or other demoralization which is certain to possess English boys who have failed of promotion for a long time. But on this most important question see page 25.

My visit to this school was made at the close of the session ending July 1866. The following Tables give the subjects of study and the class books used in each class during that session, the general time table of the school, and the scale of quarterly fees.

SUBJECTS OF STUDY AND CLASS-BOOKS.

First Class, Mr. Donaldson.

1. Latin.—Dr. Bryce's Accidence.—Jacobs' Latin Reader (Donaldson's edition).—Grammatical Exercises (Ferguson's).
2. English and Collateral Branches.—Mason's Elementary English Grammar.—Dr. Schmitz's Ancient History, Part II.—Anderson's Class-Book of Geography. — White's History of Scotland for Junior Classes.— Readings from the best Authors, No. IX.—Coutie's Word Expositor.
3. Religious Instruction.—Bible, and New Testament Biography.

Second Class, Mr. Macmillan.

1. Latin.—Dr. Schmitz's Elementary Latin Grammar.—Dr. Bryce's Second Latin Reader.—Ferguson's Grammatical Exercises.—Pillans' First Steps in Classical Geography.
2. English and Collateral Branches.—Mason's English Grammar.—Sir Walter Scott's Lord of the Isles.—Dr. Schmitz's Ancient History, Part II.—Anderson's Class-Book of Geography.—Collier's British History.
3. Religious Instruction.—Bible.

Third Class, Mr. Carmichael.

1. Latin.—Dr. Schmitz's Advanced Latin Grammar.—Cæsar and Ovid. — Elementary Latin Exercises (Chambers').—Ferguson's Grammatical Exercises.—Ramsay's Elementary Manual of Roman Antiquities.—Pillans' First Steps in Classical Geography.
2. Greek.—Carmichael's Greek Rudiments and Extracts.
3. English and Collateral Branches.—Dr. Schmitz's Ancient History, Part I.—Anderson's Class-Book of Geography.—Dr. Collier's Great Events of History.—Readings from Milton.—Arnold's English Grammar.
4. Religious Instruction.—Bible, and Porteus' Evidences of the Christian Religion, by Dr. Boyd.

Fourth Class, Dr. Bryce.

1. Latin.—Dr. Schmitz's Advanced Latin Grammar.—Advanced Exercises (Chambers').—Sallust.—Virgil.—Ramsay's Elementary Manual of Roman Antiquities.—Pillans' First Steps in Classical Geography.
2. Greek.—Dr. Schmitz's Greek Grammar.—Dr. Bryce's Second Greek Book.—Greek Testament.
3. English and Collateral Branches.—Shakespeare (Julius Cæsar).—Dr. Collier's History of English Literature.—Dr. Schmitz's Ancient History, Part I.—Dr. Wm. Smith's Smaller History of England.—Cornwell's Modern Geography. — Mason's English Grammar.
4. Religious Instruction.—Porteus' Evidences of the Christian Religion, by Dr. Boyd.—Bible.

Fifth and Sixth Classes, Dr. Schmitz and Mr. Donaldson.

1. Latin.—Dr. Schmitz's Advanced Latin Grammar.—Horace, Terence, and Lucretius; Cicero, Livy, and Tacitus.—Latin Composition in Prose and Verse.
2. Greek. — Dr. Schmitz's Greek Grammar.— Carson's Greek Exercises.—The Greek Testament.—Xenophon, Demosthenes, Plato, Homer, Euripides, Sophocles.—Greek Composition in Prose and Verse.
3. History.—Ancient and Modern.—Greek and Roman Antiquities.—Ancient and Modern Geography.
4. English.—Grammar and Composition.—History of the English Language and Literature.

Optional Classes.

French, Mr. Schneider.	Junior Class.—High School French Conversation Grammar. High School French Reader.—Schneider's New French Manual. Senior Class.—High School French Conversation Grammar. —High School French Reader.—Voltaire's Henriade, and Emile Souvestre. — Schneider's New French Manual.
German, Mr. Meyerowicz.	Junior Class.—Dr. Aue's Elementary Grammar.—Niebuhr's Heroengeschichten. Senior Class.—Dr. Aue's German Grammar, and Wagner's Lehren der Weisheit und Tugend.
Arithmetic and Mathematics, Mr. Moffat.	1. Arithmetic.—Melrose's Arithmetic. 2. Mathematics. — Geometry (Chambers'.) — Algebra (Chambers').
Writing and Book-keeping, Mr. Cooper.	Trotter's Book-keeping.
Drawing, Mr. Ferguson.	Drawing.—Figure, Landscape, Architecture, and Perspective.
Fencing and Gymnastics, Captain Roland.	Fencing, Broadsword, Gymnastics, and Military Drill.

The First Class will be opened at the beginning of next Session (Monday October 2, 1865) by Mr. Donaldson, who will also assist the Rector in the Fifth Class.

PLAN OF STUDY FOR

Days.	Hours.	CLASS I.	CLASS II.	CLASS III.
MONDAY.	9—10	Bible History and Biography.	Bible History and Biography.	Bible, or Evidences, Geography.
	10—11	English Composition.	Geography and Roman History.	History (Modern), Latin Exercises.
	11—12	Arithmetic, Writing, and Book-keeping, or French.	Arithmetic, Writing, and Book-keeping, or French.	French, Arithmetic, or Writing and Book-keeping.
	12—1	Latin Grammar and Reader.	Latin Grammar and Exercises.	French, German, Arithmetic, or Writing and Book-keeping,
	1—2	Latin—Roman History.	Latin—Reading, &c.	Latin—Cæsar, or Ovid.
	2—3	Arithmetic, Writing, and Book-keeping.	Arithmetic, or Writing and Book-keeping.	Greek.
	3—4	Geometry and Algebra, or Writing and Book-keeping.	Geometry and Algebra, or Writing and Book-keeping.	Geometry and Algebra, or Writing and Book-keeping.
TUESDAY.	9—10	Modern Geography—Coutie.	Geography and History.	Geography (Ancient).
	10—11	English Grammar, Readings.	English History, English Prose Reading, and Analysis.	English Grammar.
	11—12	Arithmetic, Writing, and Book-keeping, French, or Drawing.	Arithmetic, Writing, and Book-keeping, French, or Drawing.	French, Arithmetic, Writing, and Book-keeping, or Drawing.
	12—1	Latin Grammar and Exercises.	Latin Grammar and Exercises.	French, Drawing, Arithmetic, or Writing and Book-keeping.
	1—2	Latin—Reader.	Latin—Reading, &c.	Latin—Cæsar, or Ovid.
	2—3	Arithmetic, Writing, and Book-keeping, or Drawing.	Arithmetic, Writing, and Book-keeping, or Drawing.	Greek.
	3—4	Geometry and Algebra, Writing and Book-keeping, or Drawing.	Geometry and Algebra, Writing and Book-keeping, or Drawing.	Geometry and Algebra, Writing and Book-keeping, or Drawing.
WEDNESDAY.	9—10	Scottish History—Coutie,	Geography and Roman History.	English Literature.
	10—11	English Grammar.	English Poetical Reading and Analysis.	Latin Grammar and Exercises.
	11—12	Arithmetic, Writing, and Book-keeping, or French.	Arithmetic, Writing, and Book-keeping, or French.	French, Arithmetic, or Writing and Book-keeping.
	12—1	Latin Grammar and Exercises.	Latin Grammar and Exercises.	French, German, Arithmetic, or Writing and Book-keeping.
	1—2	Latin—Reader.	Latin—Reading, &c.	Latin—Cæsar, or Ovid.
	2—3	Arithmetic, Writing, and Book-keeping.	Arithmetic, Writing, and Book-keeping.	Greek.
	3—4	Geometry and Algebra, Writing and Book-keeping, Gymnastics and Military Drill.	Geometry and Algebra, Writing and Book-keeping, Gymnastics and Military Drill.	Geometry and Algebra, Writing and Book-keeping, Gymnastics and Military Drill.
THURSDAY.	9—10	Modern Geography—Coutie.	Geography and History.	English Grammar.
	10—11	English Grammar and Readings.	English History, English Grammar, Dictation, and Spelling.	Latin Exercises, Roman Antiquities.
	11—12	Arithmetic, Writing, and Book-keeping, French, or Drawing.	Arithmetic, Writing, and Book-keeping, French, or Drawing.	French, Arithmetic, Writing, and Book-keeping, or Drawing.
	12—1	Latin Grammar and Exercises.	Latin Grammar and Exercises.	French, Drawing, Arithmetic, or Writing and Book-keeping.
	1—2	Latin—Reader.	Latin—Reading, &c.	Latin—Cæsar, or Ovid.
	2—3	Arithmetic, Writing, and Book-keeping.	Arithmetic, Writing, and Book-keeping, or Drawing.	Greek.
	3—4	Geometry and Algebra, Writing, and Book-keeping, or Drawing.	Geometry and Algebra, Writing, and Book-keeping, or Drawing.	Geometry and Algebra, Writing, and Book-keeping, or Drawing.
FRIDAY.	9—10	Scottish History—Coutie.	English Composition.	English Grammar and Composition.
	10—11	English Grammar.	Roman History, Reading, and Analysis.	Latin Grammar and Exercises.
	11—12	Arithmetic, Writing, and Book-keeping, or French.	Arithmetic, Writing, and Book-keeping, or French.	French, Arithmetic, or Writing and Book-keeping.
	12—1	Latin Grammar and Exercises.	Latin Grammar and Exercises.	French, German, Arithmetic, or Writing and Book-keeping.
	1— 2	Latin—Reader.	Latin—Reading, &c.	Latin—Cæsar, or Ovid.
	2—3	Arithmetic, Writing, and Book-keeping.	Arithmetic, Writing, and Book-keeping.	Greek.
	3—4	Geometry, Algebra, Writing, and Book-keeping.	Geometry and Algebra, Writing and Book-keeping.	Geometry and Algebra, Writing and Book-keeping.

SATURDAY.—9—10 and 10—11.—Fencing,

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CLASS IV.	CLASS V.	CLASS VI.
Porteus' Evidences, Bible. Latin Grammar and Exercises.	Greek—Testament. Latin—Exercises corrected.	Greek—Testament. Latin—Exercises corrected.
French, Arithmetic, Writing, and Book-keeping, or German. French, German, Arithmetic, or Writing and Book-keeping. Latin—Sallust, or Virgil. Greek Grammar and Greek Testament. Geometry and Algebra, or Writing and Book-keeping.	Arithmetic, Writing, and Book-keeping, French, or German. French, German, Arithmetic, or Writing and Book-keeping. Latin—Cicero, De Amicitia. Greek—Xenophon's Cyropædia; Arithmetic, or Writing and Book-keeping. Geometry and Algebra, or Writing and Book-keeping.	Demosthenes' Philippics. French, German, Arithmetic, or Writing and Book-keeping. Latin—Cicero, De Amicitia. Arithmetic, or Writing and Book-keeping. Geometry and Algebra, or Writing and Book-keeping.
Ancient Geography; History of Greece. Modern Geography.	History and Geography. Latin—Horace, or Lucretius.	History and Geography. Latin—Horace, or Lucretius.
French, Drawing, Arithmetic, or Writing and Book-keeping.	French, Arithmetic, Writing, and Book-keeping, or Drawing.	Greek—Euripides' Andromache; Arithmetic, Writing, and Book-keeping, or Drawing.
French, Drawing, Arithmetic, or Writing and Book-keeping. Latin—Sallust, &c. Greek.	French, Drawing, Arithmetic, or Writing and Book-keeping. Latin—Livy, Lib. XXVII. Greek—Xenophon's Cyropædia; Arithmetic, Writing, and Book-keeping, or Drawing.	French, Drawing, Arithmetic, or Writing and Book-keeping. Latin—Livy, Lib. XXVII. Arithmetic, Writing, and Book-keeping, or Drawing.
Geometry and Algebra, Writing and Book-keeping, or Drawing.	Geometry and Algebra, Writing and Book-keeping, or Drawing.	Geometry and Algebra, Writing and Book-keeping, or Drawing.
English Literature; Elocution. Latin Grammar and Exercises.	Greek—Exercises corrected. Latin Grammar—Syntax.	Greek—Exercises corrected. Latin Grammar—Syntax.
French, Arithmetic, Writing, and Book-keeping, or German.	French, Arithmetic, Writing, and Book-keeping, or German.	Greek—Homer's Iliad, XIV. and XV.; Arithmetic, Writing, and Book-keeping, or German.
French, German, Arithmetic, or Writing and Book-keeping. Latin—Sallust, &c. Greek.	French, German, Arithmetic, or Writing and Book-keeping. History of English Language and Literature—Chaucer. Greek—Homer's Odyssey, XII., XIII.; Arithmetic, Writing and Book-keeping.	French, Arithmetic, Writing, and Book-keeping, or German. History of English Language and Literature—Chaucer. Arithmetic, Writing, and Book-keeping.
Geometry and Algebra, Writing and Book-keeping, Gymnastics and Military Drill.	Geometry and Algebra, Writing and Book-keeping, Gymnastics and Military Drill.	Geometry and Algebra, Writing and Book-keeping, Gymnastics and Military Drill.
Modern History; Spelling and Derivation; English Grammar. Latin—Antiquities.	History and Geography. Latin—Horace, or Lucretius.	History and Geography. Latin—Horace, or Lucretius.
French, Arithmetic, Writing, and Book-keeping, or Drawing.	French, Arithmetic, Writing, and Book-keeping, or Drawing.	Greek — Demosthenes' Philippics; Arithmetic, Writing, and Book-keeping, or Drawing.
French, Drawing, Arithmetic, or Writing and Book-keeping. Latin—Sallust, &c. Greek.	French, Arithmetic, Writing, and Book-keeping, or Drawing. Latin—Cicero, De Amicitia. Greek — Xenophon's Cyropædia; Arithmetic, Writing, and Book-keeping, or Drawing.	French, Drawing, Arithmetic, or Writing and Book-keeping. Latin—Cicero, De Amicitia. Arithmetic, Writing and Book-keeping, or Drawing.
Geometry and Algebra, Writing and Book-keeping, or Drawing.	Geometry and Algebra, Writing and Book-keeping, or Drawing.	Geometry and Algebra, Writing and Book-keeping, or Drawing.
English Literature; Essays; Shakspeare. Latin Exercises (Imitative).	Writing of Latin Exercises. Writing of Greek Exercises.	Writing of Latin Exercises. Writing of Greek Exercises.
French, Arithmetic, Writing, and Book-keeping, or German.	French, Arithmetic, Writing, and Book-keeping, or German.	Greek — Euripides' Andromache; Arithmetic, Writing and Book-keeping, or German.
French, German, Arithmetic, or Writing and Book-keeping. Latin—Sallust, &c. Greek.	French, Arithmetic, Writing and Book-keeping, or German. Latin—Livy, Lib. XXVII. Greek Grammar—Syntax; Arithmetic, Writing, and Book-keeping.	French, Arithmetic, Writing, and Book-keeping, or German. Latin—Livy, Lib. XXVII. Arithmetic, Writing, and Book-keeping.
Geometry and Algebra, Writing and Book-keeping.	Geometry and Algebra, Writing and Book-keeping.	Geometry and Algebra, Writing and Book-keeping.

Gymnastics, and Military Drill.

Table of Fees (all payable in advance).

	Per Quarter.
Rector's Course	£1 10 0
Course of the Classical and English Masters	1 6 0

Optional Subjects.

Arithmetic, with or without Algebra, one hour a day	0 7 6
Do. do. do. two hours a day	0 10 6
Geometry and Algebra	0 10 6
Practical Mathematics, with the use of Logarithms	0 10 6
Book-keeping	0 10 6
French	0 10 6
German	0 10 6
Writing, one hour a day	0 7 6
Do. two hours a day	0 10 6
Drawing—Figure, Landscape, Architectural, and Perspective, two hours a week	0 10 6
Do. do. do. four hours a week	0 15 0
Fencing, Broadsword, Gymnastics, and Military Drill, one hour a week	0 10 6

Matriculation Fee, 5*s.* per annum, payable at entry, for Janitor, Library, Maps, Models, &c.

No other dues whatever.

Quarter Days:—1st October, 15th December, 1st March, 15th May.

In one respect my inquiry into the condition of Edinburgh High School occurred at an unfortunate time. The learned rector, than whose name there are few better known in the world of literature and classical scholarship, had lately resigned, and his place had not yet been supplied. The rectorship was therefore vacant, and the instruction of the fifth and sixth classes was being temporarily conducted by a former scholar of the school. Under these circumstances it is most difficult to form a fair judgment of the school, and especially of the state of attainment in the highest classes. Moreover, the town council were taking advantage of this interregnum to reconsider the whole question of the curriculum and administration of the school; and the excitement among teachers, scholars, and all interested in the school was very great.

COURSE OF STUDY, 1864-5.

Rector's Classes.—Dr. Schmitz and Mr. Macmillan.

Subjects of Study.

Latin.—(*The Fifth and Sixth Classes combined.*)—Horace—Odes, Book I, 14, 15, 16, 17, 18, 20, 21, 22, 24. 26, 27, 28, 29, 30, 31, 32, 34, 35, 37, 38; Book II., 1, 2, 3, 7, 9, 10. Epistles, Book I., 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 16, 17, 19, 20. Livy—the whole of Book XXVI. Cicero—De Officiis, Book III. Grammar—the Syntax, according to Dr. Schmitz's advanced Grammar, and general survey of the whole subject of Grammar.

Greek.—(*Fifth Class.*)—Xenophon—Anabasis, Book VI. and part of Book VII. Homer—Odyssey, Book X. Grammar—Dr. Schmitz's Greek Grammar, chiefly Syntax. The Greek New Testament—Gospel of St. Luke, chapters I., II., III., and IV. Exercises—Weekly translations from Dr. Carson's Greek Exercises.

(*Sixth Class.*)—Thucydides—Book IV., chap. 1 to 48. Plato—Apologia Socratis and Crito. Sophocles—Oedipus Tyrannus. Homer—Iliad, Books XII. and XIII.

(*The two Greek Classes combined.*)—Greek Testament—The Gospel of St. John, from chap. V. to the end.

English.—Critical Analysis of the Etymology of the English language, according to the Manual of Dr. E. Adams. The forms and structure of the English language were constantly compared with those of the ancient and some modern languages. Essays in English were written from time to time, and critically examined. Part of Chaucer read, explained, and critically examined.

History and Geography.—History of the Asiatic Nations and of Greece from the earliest times down to the beginning of the Peloponnesian War. Ancient and Modern Geography was explained as occasions presented themselves.

Exercises—Weekly written translations from English into Latin and Greek, together with occasional extemporaneous translations from English into Latin and Greek.

Fourth Class.—Mr. Donaldson, Master.

Books read.

Latin.—Dr. Schmitz's Advanced Latin Grammar—Revisal of Declensions, Conjugations, &c. The Syntax referred to in connexion with Chambers's Advanced Latin Exercises. Chambers's Advanced Latin Exercises (new edition)—Translation of the English Exercises into Latin from p. 62–145; pp. 10–60 revised. Sallust—the Catilinarian Conspiracy. Virgil—Æneid, Books V. and VI. Horace—Odes, Book I., 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 14, 16, 18, 20, 21, 22, 24, 28, 29, 30, 31, 35, 37, 38; Book II., 6, 10, 14; Book III., 1, 2, 3, 4. Pillans's First Steps in Classical Geography—the whole (Hispania, Gallia, Italia revised). Ramsay's Elementary Manual of Roman Antiquities—Chapters III. to VIII., inclusive. Dr. Schmitz's Manual of Ancient History—History of Greece from the commencement to the Battle of Chaeroneia. Exercise in Latin Composition once a week. Voluntary Studies—Sallust; the Jugurthine War.

Greek.—Dr. Schmitz's Greek Grammar, pp. 123–72; Syntax, from pp. 179–208; Revisal of Declensions, Verbs, &c. Xenophon—Cyropædia, Book I., chap. 2–5 inclusive; Book VII., chap. 1–3 inclusive. Carson's Greek Exercises, pp. 1–48. New Testament—St. Matthew's Gospel, chap. II. to XI. inclusive.

English.—Shakespeare—Macbeth carefully; the Merchant of Venice and the Tempest rapidly. Spalding's History of English Literature—the whole; Part II. rapidly. Dr. Collier's Great Events of History—from the beginning of the Sixth Period to the end. Anderson's Modern Geography—America and Oceania. English Composition—Essays and Biographies at stated intervals. Oral—a short course of Physical Geography based on Page's Advanced Text Book.

Religious Knowledge.—Porteus's Evidences—the last six Propositions; the first six revised.

Third Class.—Dr. Bryce, Master.

Books read.

Latin.—Grammar (Dr. Schmitz's Advanced)—Part I. Etymology. Exercises (I.) Ferguson's Grammatical—the large print; (II.) Chambers' Elementary; (III.) Imitative—written in the schoolroom twice a week. Cæsar (Dr. Bryce's Second Latin Reader)—Gallic War, Book I., with portions of Books IV., V., VI. Ovid (Second Latin Reader)—the Four Ages, the Deluge, Deucalion and Pyrrha, Phaëthon, with portions of the Fasti. Roman Antiqui-

ties (Ramsay's Elementary)—Military and Naval affairs; Private Life of the Romans. Classical Geography (Pillans's First Steps)—Italy, Greece, Thrace, and Asia Minor, with the Islands.

Greek.—Grammar (Dr. Bryce's First Greek Book)—the Grammatical parts with the Exercises. Reading Lessons (First Greek Book)—Selected portions of the Anecdotes and Fables; and of the Dialogues of Lucian. Greek Testament—St. John's Gospel, chaps. I. and II.

English, with History and Geography.—Grammar—Mason's English Grammar, revised. Milton's Paradise Lost—Book I., analysed and parsed. Composition—weekly exercises in the class-room; Essays, Letters, &c. Reading—the extracts in "Readings from the best Authors" (Nelson's Series, No. X.), with frequent exercise in the Text Books of History. Spelling and Derivation—weekly exercises in Dictation; oral practice in Spelling and Derivation. Elocution—weekly recitations. History, Modern—the whole of Dr. Collier's Great Events of History. History, Ancient—from p. 127 of Dr. Schmitz's Ancient History, Part I., Greece, to p. 198. Geography (Cornwell's)—General View of Europe, Asia, and Africa; with detailed description of England, Ireland, Scotland, Hindostan, Farther India, China, Arabia.

Religious Knowledge.—Bible—II. Samuel; I. and II. Kings. Porteus's Evidences—Propositions I., II., III., IV., V., VI.

Second Class.—Mr. Carmichael, Master.

Books read.

Latin.—Dr. Schmitz's Elementary Latin Grammar—Parts of Speech, Declinable and Indeclinable; Etymology and Syntax, pp. 1–124. Elementary Latin Exercises (Chambers's), pp. 55–100. Turner's Grammatical Exercises (Ferguson's Edition)—Rules of Latin Syntax. Jacob's Latin Reader (Donaldson's Edition)—Declensions and Conjugations, pp. 15–40.

English.—Daily exercises in Spelling, Parsing, Etymology, and Analysis of Sentences on passages selected from the historical text-books of the class. Great Events of History (Dr. Collier's), pp. 9–292. Roman History—Summary of Roman History, according to Dr. Schmitz's Manual of Ancient History. English Poetry—Readings and Recitations from Sir Walter Scott's "Lord of the Isles." Ancient Geography—Palestine, Asia Minor, Greece, Italy, and Gaul. Modern Geography—General Outline of the Globe, with detailed Examination of particular Countries in Europe and Asia, according to Anderson's Modern Geography, pp. 1–126. Map Drawing of Countries, both ancient and modern. Written Exercises—all the pupils have been trained in English Composition by extemporaneous Essay Writing in the class-room.

Religious Instruction.—Daily readings and examinations in the New Testament, including the last sixteen chapters of St. Luke's Gospel, the entire Gospel of St. John, and the first twenty-five chapters of the Acts of the Apostles; Old Testament Biography, pp. 1–33, prescribed and examined upon in weekly lessons.

First Class.—Mr. Macmillan, Master.

Books read.

Latin.—Elementary Latin Grammar, by Dr. Schmitz—Substantives; Adjectives; Pronouns; Verbs, Regular, Irregular, Defective, and Impersonal; Adverbs; Prepositions, Conjunctions, and Interjections—committed to memory and frequently revised. Elementary Latin Exercises (Chambers's)—Selected portions translated and re-translated, both written and oral. Grammatical Exercises (Ferguson's Edition).—Portions of large print in Part I. done extemporaneously in the class as an exercise on the Moods and Tenses of the Verb. A few of the principal Rules of Syntax committed to memory. Jacobs' Latin Reader (Donaldson's Edition)—Selected portions from Part I. translated, re-translated, and parsed, as practice on the Declensions and Conjugations.

English.—Religious Instruction.—Daily Readings and Examinations in the Gospels of Matthew and Mark; chapters V., VI., and VII., of St. Matthew committed to memory; examinations on the Gospels and Acts of the Apostles every Monday morning, in connexion with "New Testament Biography." English Grammar (Mason's Elementary Grammar)—Essential portions committed to memory; exercises in Spelling, both oral and by dictation; parsing, analysing of sentences, &c. from the reading lesson of each day. Scottish History (Nelson's School Series) — about 100 pages carefully read and examined upon. Roman History (Dr. Schmitz's Manual of Ancient History); pp. 373–482 taught in the same manner as the History of Scotland. Readings from the best Authors (Dr. Bryces')—Weekly Readings and Recitations from. Modern Geography (Anderson's Class Book of)—Divisions of the Earth's Surface, Europe, England, Scotland, and Ireland. Ancient Geography —Outlines of the Maps of Orbis Veteribus Notus, Italia, Palaestina, &c., chiefly taught to illustrate the Scriptures and History of Rome. Written Exercises—short Historical, Biographical, and Descriptive Essays. Map Drawing.

French Classes.—Monsieur C. H. Schneider, M.C.P., Master.

Work done during the Session.

Senior Class.—Edinburgh High School French Grammar—the pupils of the Senior Class have gone over nearly the whole of the Grammar; they have written the greater part of the Exercises, learned all the Verbs, and have been repeatedly examined on the rules, both in English and in French. The High School French Reader—Read and translated a portion of the "Reader," and conversed in French on the subjects read. La Henriade—Read and translated the first two Cantos. Au Coin du feu (Emile Souvestre)—Read and translated about 70 pages. The High School French Manual of Conversation and Commercial Correspondence—almost the whole of the Lessons committed to memory. Weekly Dictations of Commercial Letters, &c.

Junior Class.—Grammar—the pupils of this class have prepared as far as page 125, and have written and read in the class the Exercises contained in that portion of the Grammar. Reader—Read and translated the first two Parts, and a portion of the third. Manual of Conversation—a part of the Lessons committed to memory. Weekly Dictations.

German Class.—Mr. Meyerowicz, Master.

Senior German Class.—Grammar—Dr. Aue's Grammar of the German Language, § 106–239. Composition—Ex. XVIII.–XLII. Reading—Wagner's Lehren der Weisheit und Tugend—Nos. 20, 26, 35, 38, 40, 44, 47, 66, 70, 72, 76, 79, 82, 84, 85, 86, 89, 94, 102, 114, 118, 119, 129, 103, 132, 134, 137, 141.

Junior German Class.—Grammar—Dr. Aue's Elementary German Grammar, § 1–118. Composition—Ex. I.–XXIX. Reading—Niebuhr's Heroengeschichten, p. 1–25.

Arithmetic and Mathematics.—Mr. Moffat, Master.

Mathematics.—(*Senior Class.*)—Euclid—Books IV., V., and VI., with a revisal of Books I., II., and III.; Plane Trigonometry, with its application to the Mensuration of Heights and Distances. Algebra—Elementary Rules; Greatest Common Measure; Least Common Multiple; Fractions; Surds; Simple and Quadratic Equations; Arithmetical, Geometrical, and Harmonical Progressions. Logarithms—their nature and use.

(*Junior Class.*)—Euclid—Books I., II., III., and IV. Algebra—Elementary Rules; Simple Equations with one unknown quantity.

Arithmetic.—(*Senior Class.*)—Vulgar and Decimal Fractions; Simple and Compound Proportion; Practice; Extraction of Square and Cube Roots; Stocks; Profit and Loss; Exchange; Compound Interest; Arithmetical and

Geometrical Progressions, by the more advanced divisions; also Compound Rules; Practice; Simple Proportion.

(*Junior Class.*)—Work done by the higher divisions of the Junior Class, much the same as stated above; by the lower divisions, the Simple and Compound Rules, Simple Proportion, Practice, Interest, and part of Vulgar Fractions.

That same dependence on public favour, partly cause and partly effect of the popular nature of Scotch schools, which necessitates the use of large public schoolrooms and classrooms as part of their premises, has originated a custom of publishing in the case of each class, at the end of the session, a statement of the amount of work got through by the class during the session. (Compare the Appendix on Aberdeen Grammar School, page 68.) The above is the official published statement of the work gone through in the session ending July 1865 : the session preceding that in which my visit was made, and the last which was uninterruptedly conducted by the late rector.

Having now given a general sketch of the origin, constitution, and present mode of conducting this great school, I proceed to report upon my visit to it in June and July, 1866, under the headings enumerated at page 5.

I. Cost of the Education in the School.

(*a*) *The Public Cost.* (*b*) *The Private Cost.*

(*a*) *The Public Cost.* From the published "Abstract of the Accounts of the City of Edinburgh for the years 1864–5," I gather that the endowment (in the English sense of the word, see page 13) of the High School is between 500*l.* and 600*l.* per annum, and that the total *public* expenditure of the school is about 1,300*l.* per annum. The difference between these sums is supplied by the corporation from municipal funds and the matriculation fees. I extract the following details from the "Abstract:"

Public Income of the School.

	£	s.	d.
Revenue, by way of endowment, applicable to the High School -	566	16	1
Matriculation fees of the scholars for session of 1864–5 - -	73	10	0
Casual receipts in behalf of the High School - - -	30	9	3
Total - - - - - -	670	15	4
Balance, supplied by the Corporation - - - -	639	8	2
Total public income - - - -	1,310	3	6

Public Expenditure of the School.

	£	s.	d.
Salaries, Repairs, Prizes, Rates, and other current expenses -	1,196	6	7
Burdens on the Endowed Revenues, and Expenses of Management	75	13	4
Bursaries - - - - - - - - -	38	3	7
Total public expenditure - - -	1,310	3	6

Of which public expenditure it appears that for that year the corporation had to pay from its ordinary revenues the sum of 639*l.* 8*s.* 2*d.*

It appears also that the corporation receives usually, in addition to the above source of income, a proportion of the pupil's fees from the rector's class, but that in the above-named year the corporation permitted the rector and other masters to retain all such fees, reserving to the burgh only the matriculation fees, as above stated.

During the year for which this calculation of income and expenditure is made, the attendance in the High School was 300 scholars, so that the expense of each scholar to the corporation for that year was (639*l.* 8*s.* 2*d.* ÷ 300) about 2*l.* 2*s.* 6*d.* per head, and the total public expenditure on each scholar was (1,310*l.* 3*s.* 6*d.* ÷ 300) about 4*l.* 7*s.* 4*d.* per head.

The salary of the rector was raised during the course of that year from 200*l.* to 350*l.* per annum, and those of the four classical masters from 35*l.* to 52*l.* 10*s.* 0*d.* per annum. No other masters in this school receive salaries.

(*b*) *The Private Cost.*—It appears from the table of fees (see page 102) that a boy may be a pupil of the High School on payment of fees amounting, with the janitor's dues, to 5*l.* 9*s.* 0*d.* per annum if he is in any of the four lower classes, and to 6*l.* 5*s.* 0*d.* per annum if he is in the fifth or sixth class. But for this sum he would only be taught the classics, and English, so far as it can be taught along with the classics. All other subjects are optional. A boy cannot be a pupil of the High School without learning and paying for classics ; but he may be a pupil of the High School without learning any arithmetic or mathematics or modern languages, which subjects are treated as extras. This system may be compared on the one hand with that of Glasgow, where a pupil of the High School is free to take any one or more subjects which he may select, and on the other hand with that of the Ayr Academy, where a curriculum, though not enforced, is recommended. (Appendices II. and IV., pages 88, 119.) In the High School of Edinburgh it may be taken for granted that all the boys are in the classical course, but there is much difficulty in ascertaining how many take the other subjects. I have thought it best therefore in this case, as in that of Glasgow, to calculate what would be the cost of a secondary education for boys of a given age in hypothetical cases.

A. is 10 years old, and in the first class ; and is to learn Latin, English (with collateral branches), arithmetic, and writing.

B. is 12 years old, and in the third class ; and is to learn Latin, Greek (which subject cannot be avoided), arithmetic, English (as above), French, and drawing.

C. is 14 years old, and in the fourth class ; and is to learn Latin, Greek (which subject cannot be avoided), drawing, book-keeping, French, arithmetic, mathematics, Latin, German, and gymnastics.

D. is 16 years old, and in the sixth class, preparing for the university ; and is to learn classics, mathematics, French, German, drawing, and gymnastics.

Then the following will be the fees, and approximate hours of study:—

A.	Hour.	Fees per Annum. £ *s.* *d.*
Religious knowledge and English subjects - -	9–11	— 5 4 0
Arithmetic - - - -	11–12	— 1 10 0
Latin - - - - -	12–2	— Nil.
Writing - - - -	2–3	— 1 10 0
Total -		8 4 0 for 30 hours' instruction per week in the above-named subjects.

B.	Hour.		Fees per Annum. £ s. d.	
Religious knowledge and Latin or English subjects	9–11	—	5 4 0	
French	11–12	—	2 2 0	
Arithmetic	12–1	—	1 10 0	
Latin	1–2	—	Nil.	
Greek	2–3			
Drawing (2 days per week)	3–4	—	2 2 0	
Total		-	10 18 0	for 35 hours' instruction per week.

C.	Hour.		Fees per Annum. £ s. d.	
Religious knowledge	9–10	—	5 4 0	
Latin	10–11	—		
French (3 days), arithmetic (2 days)	11–12	—	4 4 0	
Geometry and algebra (3 days) German, (2 days	12–1	—	4 4 0	
Latin	1–2	—	Nil.	
Greek	2–3			
Drawing (2 days), book-keeping (2 days), gymnastics (1 day)	3–4	—	6 6 0	
Total		-	19 18 0	for 35 hours' instruction per week.

D.	Hour.		Fees per Annum. £ s. d.	
Classics	9–12	—	6 0 0	
French (2 days), German (3 days)	12–1	—	4 4 0	
Classics	1–2	—	Nil.	
Drawing	2–3	—	2 2 0	
Mathematics	3–4	—	2 2 0	
Gymnastics (extra on Saturdays)	10–11	—	2 2 0	
Total		-	16 10 0	for 36 hours' instruction per week in the above-named subjects.

It is, perhaps, scarcely to be supposed that it would be possible for young boys to take so many hours of consecutive study as those laid down for A. and B. in the above calculation; especially when it is recollected that some amount of preparation of their lessons out of school would be necessary. But, supposing them to be physically capable of so much work, the above appear to be the prices which it would be necessary to pay. These results may be compared with those in Appendix I., page 71; Appendix II., page 92; and Appendix IV., page 124.

According to the foregoing calculations the total annual cost of the education of four such boys at the High School, Edinburgh, would be in each case—

		A.			B.			C.			D.		
I. *Public*	(*a*) From endowment; and other regular sources of income -	£ 2	*s.* 4	*d.* 10	£ 2	*s.* 4	*d.* 10	£ 2	*s.* 4	*d.* 10	£ 2	*s.* 4	*d.* 10
	(*b*) From the burgh -	2	2	6	2	2	6	2	2	6	2	2	6
II. *Private*	(*a*) Fees for instruction -	8	4	0	10	18	0	19	18	0	16	10	0
	(*b*) Books (about) -	0	10	0	0	10	0	1	0	0	1	0	0
	Total - -	13	1	4	15	15	4	25	5	4	21	17	4

These sums, though not perhaps extreme, are by no means low on the whole. The public cost is small, as in the case of most burgh schools (see pages 13 and 16), but the private cost is, at least, *fairly* large. The chief point, however, to be remarked in the case of this school is the cheapness of classical instruction compared with that of the other, and modern, subjects; for, whereas C. can get the whole of his classical and concomitant English instruction for 5*l.* 4*s.* per annum, it costs him 14 guineas to obtain instruction in French, German, mathematics, book-keeping, drawing, and gymnastics. The school is in truth essentially a classical school, and the curriculum is not intended to encourage other subjects.

II. Class of the Scholars.

(*a*) *Their Social Condition.*

The number of boys on the roll of the school at the date of my visit was 300. In the previous year it had been 308. The school is not open to girls. Owing to the want of adequate general registration I was unable to obtain information as to the proportion in which these 300 pupils were assignable to different social grades; but one of the masters was so kind as to allow me to inspect the register of his class, which he said was a fair specimen of the whole school. This class consisted of 56 boys, and was composed in the following manner:—

1. Sons of landed proprietors; of country gentlemen - - -	4
2. Sons of professional men, *e.g.* clerical, medical writers, advocates, &c. -	17
3. Sons of merchants and wholesale traders - - - -	7
4. Sons of superior retail traders, the larger shopkeepers, &c. - -	20
5. Sons of inferior retail traders, the smaller shopkeepers, clerks, and others, with incomes of from 150*l.* to 250*l.* per annum, &c. - - -	8
6. Sons of labourers and those in a parallel scale; artizans, mechanics, &c.	0
Total - - - - -	56

Thus it appears that this large class of 56 boys was chiefly composed of sons of large shopkeepers and those of a parallel condition (35·7 per cent.), and of sons of professional men (30·35 per cent.), who formed together more than 66 per cent., or more than three-fifths of the whole number; of the remaining 34 per cent. (less than two-fifths) the greater proportion were sons of smaller shopkeepers, clerks, &c. There were very few sons of independent gentlemen, and none of labourers, whether

skilled or unskilled. I believe that this table may be taken as pretty fairly indicating the composition of the whole school at the date of my visit.

From the same register I extracted the occupations of the parents, age on entrance to the school, and distance of residence from the school of the last 20 boys admitted to the class, which were as follows:—

Occupation of Parent.	Age at Entrance.	Residence.
1. Miniature painter	12 years	8 miles (comes in by rail.)
2. Baker	14 „	18 „ (do.)
3. City clerk's assistant	13 „	1½ „
4. Australian miner	12 „	¾ „
5. House governor of a hospital	13 „	1¼ „
6. Auctioneer	12 „	1¼ „
7. Presbyterian minister in an English town	12 „	1¼ „
8. Teacher of music	11 „	1 „
9. Wine merchant	10 „	2 „
10. Farmer (retired merchant)	15 „	4 „ (walks to school.)
11. Physician	9 „	2 „
12. (Unknown)	13 „	½ „
13. Draper	15 „	1¼ „
14. Drysalter	13 „	2½ „ (do.)
15. Merchant	11 „	1¼ „
16. Proprietor	11 „	1 „
17. Draper	11 „	1½ „
18. Builder	12 „	2 „
19. Army clothier	14 „	¾ „
20. Working jeweller	13 „	1 „

From this table it appears that the average age of boys who enter as pupils of this master is about 12⅓ years. This result should be compared with the calculations in Appendices I., page 74; IV., page 126; and II., page 94. Edinburgh High School, it will be seen, is one in which the preparatory part of secondary education is not undertaken. The "High School course" (*i.e.* the secondary classical instruction) is, as at Aberdeen, the proper work of the school (see page 24).

(*b*) *The Length of Time they stay at School.*

I am sorry to say that I was unable to obtain any reliable general information regarding the age at which pupils leave the school, and the occupations into which those leaving at the different ages enter. The only approximation that I was able to make to any conclusion on this subject was by obtaining the ages of the scholars in the highest class in the school at the time of my visit. When I was examining the fifth and sixth classes I requested each scholar to put at the head of his paper a statement of his present age, and the length of time he had been at the High School. The scholars were all good enough to comply with this request; and the result was that the average age of the 26 scholars then examined proved to be less than 16 years (viz. 15·76 years). The table giving this result will be found on page 116; and it will be seen that while most of the scholars leave the school at the age of 15–16 years, there are some in the school who stay until they are 18 years old.

This school must, therefore, like the grammar school of Aberdeen, be classed as a middle school of the first grade (see page 6). It is evident, however, that the school is a genuine middle school, and that it is no longer attended by the sons of the nobility and first-class gentry of Scotland, nor even by such a large proportion of the sons of professional men as it formerly was; nor would it be fair to criticise it as a first grade school (see page 29).

III. Character of the Buildings and Premises.

As regards the appearance and situation of these buildings it is not necessary to say much. I am not acquainted with any college or school in Great Britain which occupies a finer site than that of the High School of Edinburgh, and the external appearance of the building is worthy of the site. As regards internal arrangement there is much to praise, and much that is worthy of being imitated by our large London schools. I allude especially to the large and handsome library, and the hall. The keen interest which the magistrates and citizens of some Scotch burghs take in their burgh schools, and their intelligent desire to observe and see for themselves what progress is being made in the studies of the pupils, have caused these large public rooms to be considered a necessary part of the buildings of a good burgh school, and wherever, as in Edinburgh and Aberdeen, this interest in education is particularly strong and the burgh school buildings are new, such a hall or public schoolroom is considered indispensable. The library is, I am sorry to say, as rare a feature in the burgh schools as in our grammar schools. That of Edinburgh High School is, I believe, a good one, and it is open to all the pupils (see page 39). The principal defect which I noticed in the internal accommodation of these buildings is the want of desks in the classrooms, and the consequent encouragement to bad handwriting, or discouragement of writing at all. This is a serious defect in any school, but especially in a secondary school, and the effect on the higher classes, who, if they have a good teacher, ought to take notes with ease and readiness, must be injurious. The offices are also not what I should wish to see in an English school; they are not so bad as those of Glasgow High School, but are somewhat similar. With these exceptions the building and premises are magnificent, the classrooms and lecture-rooms most lofty and handsome, and the whole edifice is well worthy of the beautiful city to which it belongs. The architect was a former pupil in the school. The cost of the buildings and premises, that is of levelling and enclosing the ground, building, and furnishing, &c., amounted to 34,199*l.* 11*s.* 6*d.* Of this amount 3,984*l.* were raised by voluntary contributions; among the contributors being the king (George IV.) who gave 500*l.* The rest of the money required was voted by the town council of the burgh.

This building and these premises afford (with the exception perhaps of those of Aberdeen grammar school) the most favourable examples of school management by a town council that came under my observation in Scotland. The patrons of Edinburgh High School appear to take a keen and unusually enlightened interest in their school. They are more liberal in supplying apparatus, and in giving help and encouragement to the masters than the patrons of the other burgh schools which I visited. It must be remembered that Edinburgh has long been a city where education is much valued. A large number of the citizens are occupied in the actual exercise of the educational profession, and, perhaps, the

proportion of professional to mercantile men is greater here than in most towns (see pages 37–8).

IV. The Quality of the Teaching.

(*a*) *The Qualification of the Teachers, Educational Status, &c.*

I have already mentioned that, at the time of my visit to this school, it was without a rector, and that that portion of the rector's functions, which consists in instructing the fifth and sixth classes, was temporarily discharged by a former pupil of the school. This gentleman was formerly dux of the school, and obtained in his year the two greatest annual prizes of the school, viz., the Macgregor gold medal for Latin, and the city gold medal for Greek; and it seems probable that no more efficient person could have been chosen to conduct the sixth class during the interregnum. It would not, however, of course be fair to judge of the method and system of instruction imparted to the highest class of this school under these circumstances, and I greatly regret that I had not an opportunity of hearing the highest class instructed and catechized by its late distinguished teacher. The remainder of the staff of the school consisted of three graduates (M.A.) of Edinburgh, and one (LL.D.) of Trinity College, Dublin, engaged in teaching the classical classes, another graduate (M.A.) of Edinburgh teaching the arithmetical and mathematical classes, a French, German, a writing, and a drawing master (not graduates), and a teacher of fencing and gymnastics.

As regards education and general cultivation, these teachers are all well qualified for their office (see page 45).

(*b*) *The Method of Instruction.*

One feature in the education given in this school is the *religious instruction*. The school professes to give religious instruction to all its pupils, and yet not to teach that which shall be offensive to any sect or denomination in the Christian Church, and it really seems as if this programme were carried out with a considerable amount of success. The time-tables and programme (pages 100–106) show what are the books actually read on this subject. It will be seen that the religious instruction is given as the first lesson on Monday mornings, and I attended one of the classes at that hour with the especial view of ascertaining whether there were many of the class absent. Boys of several different denominations were present, and the teacher told me that there was not more absenteeism from that lesson than from others. I observed, however, that one Roman Catholic pupil came in after the conclusion of the lesson. I concluded that the religious knowledge is not compulsory, but is accepted by most pupils, and at all events by all those of Protestant denominations. This success, whatever it may be worth, seems to me to be due partly to the fact that the school is a day school, and partly to the fact that the teachers are laymen. Under judicious lay teachers there need never be any real difficulty about religious instruction in a day school.

The *classical instruction* given in the four lower classes did not, on the whole, impress me so favourably as that given in some other burgh schools. Two of the masters appeared to be very intelligent and efficient teachers, but I did not remark so much vigour, energy, and activity among the pupils here as in some other burgh schools. In two of the classes there was a want of method and system which

appeared to cause moderate results, and in one of them the order was far from satisfactory. Considering that the main business of the school is classical teaching, I was, on the whole, rather disappointed in the style of the classical teaching in these junior classes. For reasons already given, I could form no opinion of the methods which had been adopted in the rector's classes.

The *arithmetical and mathematical instruction* was decidedly unsatisfactory. Only 186 boys in the school were learning arithmetic; only 25 were learning mathematics. The classes come to be taught these subjects in their classical order, and the master is consequently put to very great trouble in re-arranging and subdividing them. The order in this class-room was most unsatisfactory: the behaviour of the boys being almost the only unpleasant reminiscence which I retain from my Scotch tour. The methods of teaching were not good, and altogether there was nothing in this department which I can commend to the Commissioners' notice.

The *French instruction* is conducted by an able teacher, a foreigner, who has a good knowledge of English. He keeps his pupils in perfect order, and his methods of teaching are good. He does not however get fair play in the school; and the results are, consequently, as will be presently seen, unsatisfactory. The whole strength of the school is thrown into classical teaching. French is optional, and not much esteemed; whereas classics are compulsory and determine position in the school and all other honours. The boys did not appear to take much interest and concern in their work. They are sent in to the French master in two large classes, in which pupils of very different attainments are mixed up together. This is done in order to suit the convenience of the classical masters. The result of all this is, that the study of French occupies an inferior position in the boys' opinion; and that they do not exert themselves in it sufficiently. I am not able to connect the unsatisfactory results in French with any defect in the method or qualification of the French master. There were 97 boys learning French. The teaching of German I did not inspect. Modern languages ought to occupy a very different position in a school like this.

The *English instruction* (*i.e.* in dictation, modern geography, history, and the like,) is given by the classical masters along with the classical instruction, as at Aberdeen Grammar School (see Appendix I., page 67). The same remarks seem applicable to this as to the classical branch of instruction. Two of the masters appeared to me to teach it well, with good methods and much resource; the others did not appear to be more successful in their teaching of this subject than in their classical instruction.

Drawing is taught by a master who comes to the school two days a week for four hours each day. I found that only 40 boys were studying this subject. The drawing class-room is much too small for its purpose, and is very moderately supplied with models and the requisite apparatus; neither is there anything in the teaching which I can commend to the Commissioners' notice. The boys copy landscapes, &c. from the flat, and they are not taken through any systematic or really thorough course of art instruction.

Music is not taught in the school.

V.—Effects of the Education.

(*a*) *Attainments of the Scholars.*

The Lord Provost and the masters kindly permitted me to question the several classes; and I did so, with the assistance of the masters, orally in some classes and by Paper in others.

The results of the oral questioning in Latin, Greek, and English in the four lower classes confirmed the conclusions which I have already mentioned respecting the teaching in those branches. I gave the fifth and sixth classes Paper XXI. and the first part of Paper XXII. to work for me, without any books of reference; and the following Table gives the results of this examination on paper. It will be seen that the class consisted of 26 boys of the average age of 15¾ years, and who had been on an average 3¾ years in the High School. The papers were collected at random, and are numbered in the order in which I happened to revise them. They do not therefore designate any rank in the class, or point to the individuality of the scholars. The passage of English to be turned into Latin on Paper XXI. was read out to them in order to test their spelling; and the result is given in number of errors:—

No. of Scholar.	Age (Years).	Time in School (Years)	Class.	Errors in Dictation.	Paper XXI., Max. 100.				First part of Paper XXII., Max. 100.		
					Quest. I. (50.)	Quest. II. (30.)	Quest. III. (20.)	Total.	Quest. I. (*a*) (40.)	Quest. I. (*b*) (60.)	Total.
1	18	2	VI.	0	30	28	20	78	35	50	85
2	15	5	„	0	20	15	5	40	35	30	65
3	15	5	„	0	30	30	15	75	30	60	90
4	16	4	„	0	35	28	10	68	35	20	55
5	16	5	„	0	30	18	15	63	30	—	30
6	18	6	„	0	30	30	20	80	20	20	40
7	15	2	V.	0	35	25	5	65	35	20	55
8	16	4	„	0	25	25	15	65	30	10	40
9	15	5	„	0	40	30	10	80	40	50	90
10	16	5	„	0	25	12	20	57	20	30	50
11	16	1	„	2	15	15	0	30	10	20	30
12	15	1	„	0	25	10	0	35	5	10	15
13	17	5	„	3	5	8	0	13	10	5	15
14	16	3	„	0	25	25	5	55	abs.	abs.	abs.
15	16	5	„	0	15	30	15	60	„	„	„
16	17	5	„	0	5	20	10	35	„	„	„
17	15	5	„	0	10	5	–	15	„	„	„
18	16	5	„	2	0	25	–	25	„	„	„
19	16	2	„	0	25	10	0	35	„	„	„
20	12	1	„	0	0	5		5	„	„	„
21	17	4	„	0	10	12	–	22	„	„	„
22	15	5	„	1	10	5	0	15	„	„	„
23	16	4	„	0	35	20	–	55	„	„	„
24	17	1	„	0	20	10	0	30	„	„	„
25	14	5	„	0	10	5	5	20	„	„	„
26	15	5	„	0	5	10	0	15	„	„	„

Where, in the above Table, blanks are left, the question was not attempted. The Greek Paper was only attempted by 13 out of the 26 boys.

The handwriting in these Papers was only moderate, but the spelling, as shewn in the exercise from dictation, was very good. Only eight mistakes were made by the whole class, and 22 out of the 26 had no errors. In the Latin prose (Paper XXI., Question I.) the class, as a whole, got an average of nearly 20 out of 50 marks; which result, though not perhaps unsatisfactory, cannot be regarded as very brilliant in a distinctively classical school. (Compare Appendix I. page 80; and my London Report, pages 293–4.) It must however be remarked that the scholars here are younger on the whole than those to whom I gave this Latin prose at

Aberdeen, and younger also than those of whom I speak in my London report as examined in schools of the first grade. I have elsewhere remarked that, practically, it is not fair to compare any of these Scotch schools with English schools of the first grade (see pages 28, 29). The passages of Livy in Paper XXI., Questions II., III., were both unknown to the class. Not many of them broke down altogether in the translation (Question II.); and I consider that this part of their work was very good; their average being $17\frac{1}{2}$ out of 30 marks. This translation showed more power than the "version" into Latin prose. The average of the whole class on the whole of Paper XXI. was $43\frac{3}{4}$ out of 100 marks; probably a better average level than a similar number of boys taken from the top of an English school of similar grade would reach. The Greek in Paper XXII. was only attempted by the first 13 boys. The passages were, I believe, unknown to them all, though some of them had read a little of Thucydides. The result was extremely creditable to them, and showed I think that they must have been well taught. They obtained an average of rather more than 50 out of the 100 marks assigned to the paper, showing themselves, in this work, quite equal to any secondary school of the first grade that I have inspected.

The results of classical instruction in this school are, on the whole, when compared with those in English middle schools of the first grade, slightly superior, but certainly not equal in point of individual excellence. In other subjects the results of my examination were not satisfactory. The standard in mathematics and arithmetic was low, and those whom I examined had not learnt very well what they professed. Much better results in this subject ought to be required in a secondary school than are attained in this school. The results in French were also unsatisfactory. I gave the 10 best pupils (picked by the master) Paper XIX. These were the only pupils in the school who could attempt it. Their average age was 15 years, and they had been learning French on an average two years. They did not answer these questions at all satisfactorily. For example, they only obtained an average of 10 out of 40 marks for the translation (Question I.); and, generally, showed that they had not made much advance in French.

It will be observed that here, as at Aberdeen, the classes are very large. Except in the case of the highest class, which was no doubt diminished by the vacancy of the rectorship, I generally found more than 60 boys in a class. I did not, however, think that the difference in classical attainments between boys at the head and foot was so strongly marked in the best classes here as at Aberdeen, though in one or two classes it was quite as apparent.

I was, on the whole, a little disappointed by the results of my inspection and examination of this school. I do not consider it as by any means the most deserving of imitation or commendation among the burgh schools which I visited. There were in some classes good methods, much vigour, and satisfactory results; but in others there was a want of system, order, and progress which I did not often observe in Scotland. Some of this may have been due to the vacancy in the rectorship; but more is, I think, due to the fact that the school is endeavouring to give a kind of education which is not thoroughly suitable to the class of boys who at present attend it. The social class of pupils in this school is not what it was. The school has become more decidedly *middle* than it was; but the curriculum has not been sufficiently modified to meet the change. If classics were so supremely well taught throughout the school that it far excelled all other burgh schools in Latin and Greek scholarship it might be worth while to consider whether there are not

advantages to be balanced against the low condition of scientific and modern teaching. But I do not think the school is much better in classics than some other burgh schools where the modern subjects get their full share of attention ; and meantime the numbers of the scholars are diminishing, so that the maintenance of the existing curriculum, while it alienates the middle classes in Edinburgh from their High School, and is gradually driving them into private schools, produces no real counterbalancing advantages. A secondary school in which mathematics and French are not more thoroughly taught than they are here cannot be commended in respect either of the method or the results of instruction. As, however, I have already remarked, the patrons appear to be sensible of the necessity of some change in the system of working the school, and I think it likely that even before this report can be printed some of the defects of the present system will have been remedied.

APPENDIX IV.—THE HIGH SCHOOL, GLASGOW.

Preliminary.

The High School, or Grammar School, as it was formerly called, is the only burgh school in the city of Glasgow. It is a very ancient establishment, perhaps coeval with the formation of the church in Glasgow, and was probably organized long before the creation of the university by the Bull of Pope Nicholas V. in 1450.

The school appears always to have borne a respectable and frequently a pre-eminent character for excellence, and its masters or rectors have held positions of trust and responsibility in the city.

During the 16th and 17th centuries great interest appears to have been taken by the city in its school, for the Presbytery (or exercise as it was then called) and the Lord Provost made several orders and regulations in regard to it.

After the revolution of the 17th century the ordinary course of education in the school was one which lasted *four years*, and the business of the school was conducted by a rector and three masters, the former having superintendence over the latter.

Towards the close of the 18th century the rectorship was abolished, and the school was ordered to be conducted by four equal masters. And though in 1815, when the course of study in the school was ordered to be extended to *five years*, the office of rector was restored, it carried with it no authority over the other four masters.

All this time the school remained one for the teaching of classics merely, but in 1834 it was once more remodelled. The office of rector was again abolished, the number of classical masters was reduced from four to two, a large element of modern subjects was introduced, and the school assumed its present shape. The present condition of the school is somewhat remarkable. It is now in fact not *a* school but *six* schools, each under a separate master, each almost entirely independent of the other. The six schools consist of the following departments, viz. :—

1. The classical school, under two masters and assistants.
2. The school of modern languages, under one master.
3. The English school, under one master and assistant.
4. The school of arithmetic, geography, and mathematics, under one master and assistant.
5. The writing and commercial school, under one master and assistant.
6. The school of art (drawing and painting), under one master.

These schools are in point of fact almost entirely independent of one another, the only bonds of union between them consisting in the facts that they are held in a common building, that their head masters are all appointed by one board of directors, that those masters of necessity confer with one another in reference to the hours in which they shall hold their respective classes, and that the fees are regulated in the case of each department by that directing board.

The governors, or "patrons" as they are called, of the institution are the Lord Provost, magistrates, and town council of Glasgow, whose executive or committee of management consists of the Lord Provost, the bailie, the dean of guild, eight merchants or other residents in Glasgow, the convener and the sub-convener. In their prospectus the patrons particularly call attention to the fact that each school is separate and independent of the other. They say:—"The object of this institution "is to afford at a moderate expense a complete course of education, "qualifying young gentlemen for the universities, for entering the army "or navy, for engaging in commercial pursuits, or in such professions "as require a knowledge of drawing and painting. With this view the "school is divided into several departments, each conducted by its "appropriate master, an arrangement attended with obvious advantages, "as by the division of labour every master has his peculiar group of "subjects, to which his exclusive attention is constantly directed, and "he therefore it is presumed becomes more competent to communicate "instruction than a teacher who has to profess *all* branches. By this "plan also parents and guardians have the power of selecting such "studies as may be deemed most suited to the general interest or "intended profession of the pupil, without being compelled to enrol "him in all the departments."

Each master is appointed for life by the patrons, on the condition of a due discharge of his duties. But the patrons are absolute in this matter, and should they at any time choose to appoint any master for a limited period, or on any other conditions, it is in their power to do so. The masters, however, who were in office at the date of my visit considered that their appointments were held "ad vitam aut culpam." The amount of the fee which each master is permitted to charge for his share of the instruction is fixed for him. He has his own separate class-rooms, and is allowed almost free scope in the choice of his books, system, and plan of instruction.

The patrons hardly ever interfere. Their theory is that they endeavour to choose a good man, furnish him with a room in which to teach, appoint the subject which he is to profess, and the price he is to charge for it, and then say to him, "Now get as many pupils as you can and deal with them as you like."

The masters thus left to themselves have formed themselves into a sort of junta, of which each master is chairman by a week in succession. It is by means of this organization that they transact all such business as requires their co-operation, such as the arrangement of the time-table, the fixing of holidays, and the like.

The school year is called "the session." It is divided into four quarters, each of about two and a half months duration. The first quarter generally lasts from about October 3 to December 15; the second from about December 29 to February 28; the third from about March 1 to May 12; the fourth from about May 12 to October 1. And here there is one very singular feature, namely that the summer holidays occur *in the middle* of the fourth quarter, viz., from June 1 to July 31. The effect of this is that this quarter is always somewhat broken. Many scholars do not consider it worth while to begin paying quarterage in

the middle of May when they will be dismissed for the holidays in about three weeks, and consequently many of them anticipate the holidays and go with their parents into the country about the middle of May, recommencing their attendance at the beginning of August, when the school reassembles to prepare for the September examinations. The reason for fixing the vacation at this period of the year is the custom prevalent among the merchants and other residents in Glasgow of leaving town for the seaside or the highlands at this period of the year. The reason for causing a quarter to extend over the vacation, so as to comprise it, is obviously financial.

The following were the time-table and the programme of study for the session commencing October 3, 1866. On these, however, it must be remarked that as a matter of fact there is now no teaching in German, and that the drawing for gentlemen in business has no practical existence. The master of modern languages informed me that he never had more than four applications for any one hour in German. He has had more applications for learning German, but never more than four for the same hour. Hence, as his time can be more profitably employed in other ways in the town, he has never found it worth his while to teach a German class in the High School, and now from long disuse he is not in a position to undertake such instruction. On the other hand interesting lectures are given by Dr. Bryce in geology, a subject which does not appear in the programme. (See page 132.)

I.—LANGUAGE AND LITERATURE.

Classical Department.—Dr. M'Kindlay and Dr. Low.

First Year's Class, Dr. M'Kindlay -	Latin Rudiments, Elementary Reading, &c. - - Edinburgh Academy Rudiments, Elementary Exercises, Introductory Delectus, Bible.	1 till 3
Second Year's Class, Dr. Low - -	Latin, Classical History, and Geography - - Rudiments, Delectus, Nepos, Cæsar, Grammatical Exercises, History of Rome, Bible.	9 till 12*
Third Year's Class, Dr. M'Kindlay -	Latin, Greek, Classical History, and Geography - Cæsar, Ovid, Mair's Introduction, Chambers's Roman History, Greek Grammar, Bible.	9 till 12*
Fourth Year's Class, Dr. Low - -	Latin, Greek, Geography, and Antiquities - Sallust, Virgil, Latin Composition, Sandford's Greek Extracts, Greek Testament, &c.	1 till 4*
Fifth Year's Class, Dr. M'Kindlay -	Latin, Greek, and Antiquities - - - Cicero, Horace, Livy, Ramsay's Antiquities; Xenophon, Homer, Herodotus; Composition, &c.	3 till 5

Fee per quarter, for each class, 15*s.*

Foreign Language Department.—Mr. Wolski.

First Year's French Class—Wolski's French Grammar, 4th, 5th, or 6th ed.; Wolski's French Extracts, 3rd, 4th, or 5th ed. - - -	10 till 11
First Year's French Class— do. do. do. -	12 till 1
Second Year's French Class— do. Wolski's Select Course of French Reading—L'Echo de Paris (French conversation and composition) - - - - - - - -	11 till 12
First Year's German Class (if a sufficient number of pupils should come forward) - - - - - - - - -	4 till 5

Fees per quarter, French, 13*s.* 6*d.*; German, 15*s.*

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* In the above classes, attendance for more than two hours a day is not compulsory.

ENGLISH DEPARTMENT.—Mr. BELL and Assistant.

Initiatory Division.

Reading, spelling, elements of grammar, lessons on objects, religious knowledge - - - - - - - - 10 till 12

Fee per quarter, 15*s.*

*** A class for beginners is formed every quarter-day. A class-room and play-ground have been provided exclusively for this division.

First Class.—Reading, spelling, Bible, geography, religious knowledge - 10 till 11
Second Class.—Reading, history, spelling, religious knowledge, grammar - 11 till 12
Third Class.—Select extracts, spelling, grammar, history, &c. - - 12 till 1
Fourth Class.—Senior reader, composition, analysis, grammar, spelling - 1 till 2
Fifth Class.—Course of reading, grammar, spelling, composition - - 3 till 4
Sixth Class.—Select readings, religious knowledge, English literature, logic, physiology, essay and letter writing - - - 2 till 3

Fee per quarter, 1st, 2nd, and 3rd, classes, one hour, 10*s.* 6*d.*, two hours, 15*s.*; 4th, 5th, and 6th classes, one hour, 12*s.* 6*d.*, two hours, 15*s.*

II.—SCIENCE AND ART.

COMMERCIAL AND MATHEMATICAL DEPARTMENT.—Dr. BRYCE and Assistants.

Arithmetic (junior).—Bryce's "Rules and Tables" of Arithmetic - - - - - - - - 9 till 10, or 12 till 1
Arithmetic (senior).—Thompson's or Whyte's Arithmetic, Bryce's "Arithmetic of Decimals, adapted to a Decimal Coinage" - - - - - - 11 till 12, or 1 till 2
Modern Geography (junior).—Bryce's First Principles of Geography, Thompson's Geography, Johnston's, Black's, or Chambers's Atlas - - - - - 10 till 11
Modern Geography (senior).—With Elements of Astronomy, Globes, &c., Thomson's Geography, and Bryce's Astronomy - - - - - - - 2 till 3
Mathematics.—Thomson's Euclid, Bryce's Algebra, and Thomson's Calculus - - - - - - 3 till 4

Fee per quarter, Geography, 10*s.* 6*d.*; Arithmetic, one hour, 10*s.* 6*d.*, two hours, 12*s.* 6*d.*; Mathematics, 15*s.*

WRITING AND BOOK-KEEPING DEPARTMENT.—Mr. MACNAB and Assistant.

Writing (plain and ornamental), one hour, 7*s.* 6*d.* per quarter; two hours, 10*s.* 6*d.* - 9 till 10, 10 till 11, 11 till 12, 12 till 1, 1 till 2, and 2 till 3.
Book-keeping.—Muir on Bills of Exchange, Jones' and Bryce's Book-keeping, and several M.S. sets, by double entry, adapted chiefly to foreign factorage accounts - - - - - 10 till

Fee for book-keeping, 21*s.*, the course of six months.

Classes for book-keeping are opened regularly on the 1st of October and 1st of March. Pupils for writing can be admitted at any period of the session.

DRAWING AND PAINTING DEPARTMENT.—Mr. J. A. HUTCHISON.

Initiatory Class.—Flowers, landscapes, and animals. Perspective, mechanical, and engineering drawing from models - - - -
Junior Class.—Drawing and painting in light and shade. Heads and landscapes. An illustrated course of natural history - - -
Senior Class.—Drawing from statuary. Oil and water-colour painting. Ornamental, architectural, and engineering drawing, natural history of the Bible, illustrative and explanatory - } 9 till 10, 2 till 3, or 3 till 4.

*** Pupils for Drawing can be admitted at any period of the session, and for any of the three class hours.

Fee per quarter:—Initiatory class, 10*s.* 6*d.*; junior class, 15*s.*; senior class, 1*l.* 1*s.*; two hours, one-third additional.

Private classes, 21, Elmgrove Place.—Drawing and water-colour painting, 3*l.* 3*s.* per quarter; oil painting, 5*l.* 5*s.*

JANITOR'S FEE.—Every pupil before enrolling with any master is required to take at the lodge a matriculation ticket, for which the janitor's annual fee of 2*s.* 6*d.* is charged.

SUMMARY showing the CLASSES in Operation at each HOUR.

HOURS.	Dr. LOW.	Dr. M'KINDLAY.	Mr. WOLSKI.	Mr. BELL.
9–10	Latin, etc., 2nd year.	Latin, etc., 3rd year.		
10–11	Do.	Do.	French, 1st year.	First Class.
11–12	Do.	Do.	French, 2nd year.	Second Class.
12–1			French, 1st year.	Third Class.
1–2	Latin and Greek, 4th year.	Latin, 1st year.		Fourth Class.
2–3	Do.	Do.		Sixth Class.
3–4	Do.	Latin or Greek, 5th year.		Fifth Class.
4–5		Do.*	German, 1st year.	
8–9				

(*continued.*)

HOURS.	Dr. BRYCE.	Mr. MACNAB.	Mr. HUTCHISON.
9–10	Junior Arithmetic.	Writing.	Drawing and Painting. *Senior, Junior, and Initiatory.*
10–11	Junior Geography.	Writing and Book-keeping.	
11–12	Senior Arithmetic.	Writing.	
12–1	Junior Arithmetic.	Writing.	
1–2	Senior Arithmetic.	Writing.	
2–3	Senior Geography.	Writing.	Drawing and Painting, *Senior, Junior, and Initiatory.*
3–4	Mathematics.		Drawing and Painting. *Senior, Junior, and Initiatory.*
4–5			
8–9			Drawing for Gentlemen in Business.

* Unless some other hour be found more convenient.

Having now given a preliminary sketch of the objects and nature of this school, I proceed to describe the results of my visit of inspection according to the plan and under the headings proposed at page 5.

I. Cost of Education in the School.

(*a*) *The Public Cost.* (*b*) *The Private Cost.*

(*a*) The city chamberlain was good enough to furnish me with a copy of the accounts of the corporation for the year ending September 30, 1865, from which I have extracted the following statement of the expenditure for that year upon the school by the corporation. I am informed, however, that this was an exceptional year, as certain alterations were made during the course of it in the premises of the school, and that the average yearly expenditure would not reach this amount. The account is as follows:—

Educational Department.

	£	s.	d.
Salaries to teachers	200	0	0
Salary to janitor	5	0	0
Prizes distributed to scholars	51	1	0
Expenses at distribution of prizes	0	17	7
Gas, 9*l.* 6*s.* 10*d.*; water, 6*l.* 16*s.* 10*d.*; coal, 20*l.* 14*s.*	36	17	8
Insurance, 3*l.* 15*s.*; local assessments, 14*s.* 2*d.*	4	9	2
Smith and plumber work and ironmongery,	39	16	7
Upholstery, joiner, and glazier work	4	7	9½
Slater, plaster, and mason work	9	17	10
Labourers' wages, drain pipes, and carting	13	10	10
Extra cleaning and furnishings, per janitor, 28*l.*; brushes, 2*l.* 10*s.* 3*d.*	30	10	3
Total	396	8	8½

From this it appears that the corporation spent in that year upon the school the sum of 396*l.* 8*s.* 8½*d.* Taking 700 as about the number of boys who really get their education in the school in a given year, we shall get the very moderate sum of 11*s.* 4*d.* (about) as the annual expense of each scholar to the corporation.*

(*b*) There is some difficulty in estimating the cost to parents in a school like this where there is no regular prescribed curriculum paid for in the lump, but it is left to the fancy of each parent or scholar to choose what classes he shall attend and for what subjects he shall pay. Perhaps the best way of representing the cost to parents of education in the High

* It was suggested to me that I ought to add to this calculation a consideration of the amount in which the corporation may be said to be out of pocket by the non-conversion into revenue of the site and buildings of the school. I inquired of several merchants and others in Glasgow what was the probable value of these premises, and opinions gave it as from 10,000*l.* to 20,000*l.* Supposing them to be worth 15,000*l.*, which is certainly not a low estimate, this sum at five per cent. would yield to the corporation an income of 750*l.*, which, again divided among 700 boys, gives us a loss to the corporation upon each boy of about 1*l.* 1*s.* 5*d.*, per annum. If then possible gains not realized are to be considered as expenditure, this sum must be added to the 11*s.* 4*d.* above mentioned, and will give us a total annual public cost of 1*l.* 12*s.* 9*d.* upon each boy. But this is not a satisfactory way of calculating; for if possible gains not realized are put down to expenditure, then possible losses not incurred must be put down to income. And on this hypothesis the school puts a considerable sum of money into the pockets of its patrons; as there can be no doubt that the low range of its fees keeps down the cost of education throughout the town: I think therefore that the more satisfactory way of calculating is to regard only the actual disbursements. The *public cost*, then, of burgh school education in Glasgow is 11*s.* 4*d.* per scholar per annum.

School at Glasgow will be to state the case in some such manner as the following :—

Suppose I am a resident at Glasgow, and have four sons at the school, aged respectively—

A. = 10 years, B. = 12 years, C. = 14 years, D. = 16 years ; and suppose that I wish A. to learn arithmetic, English (including geography), French, and writing.

B. to learn arithmetic, geography, French, Latin, and drawing.

C. to prepare for a counting-house, and to learn drawing, writing, and book-keeping, French, senior arithmetic, mathematics, and German.

D. to prepare for the university, and to learn classics, mathematics, German, and painting.*

Then on the above hypothesis the following Tables will show the cost to me, the parent, for each of the four boys :—

A. has 25 hours' instruction per week.

Subject.	Hour.	Master's Fee, £ s.
Arithmetic	9–10	2 2
Geography	10–11	2 2
English	11–12	2 2
French	12– 1	2 14
Writing	2– 3	1 10
Total		£10 10 0
Janitor's Fee		0 2 6

The cost to the parent is therefore £10 12 6 in fees, exclusive of books, stationery, &c.

B. has 30 hours' instruction per week.

Subject.	Hour.	Master's Fee. £ s.
Arithmetic	9–10	2 2
Geography	10–11	2 2
French	11–12	2 2
Latin	2– 3	3 0
Drawing	3– 4	3 0
Total		£12 6 0
Janitor's Fee		0 2 6

The cost to the parents is therefore £12 8 6 in fees, exclusive of books, stationery, &c.

* I should also wish him to be lectured by Dr. Bryce upon senior geography, including geology; but with the present arrangement of the time-table cannot manage it without sacrificing classics, unless the boy is in the fifth year classics. But if he is in the fifth year classics I can get the geology, but shall have the more serious loss of mathematics, which are taught at the same hour as that in which the highest classics are taught. My chance of getting German for him is also questionable, as that depends on a *sufficient* number of candidates coming forward ; and, indeed, at the present moment I believe it would be impossible to obtain for him teaching in German at the High School. (*See* page 122).

C. has 30 hours' instruction per week.

Subject.	Hour.	Master's Fee. £ s.	
Drawing - - -	9–10 -	4 4	
Writing and Book-keeping	10–11 -	3 12	
French - - -	11–12 -	2 14	
Arithemetic- - -	1– 2 -	2 2	
Mathematics - -	3– 4 -	3 0	
German - - -	4– 5 -	3 0	
	Total - -		£18 12 0
	Janitor's Fee -		0 2 6

The cost to the parent is therefore £18 14 6 in fees, exclusive of books, stationery, &c.

D. has 35 hours' instruction per week.

Subject.	Hour.	Master's Fee. £ s.	
Drawing and Painting -	9–11 -	6 6	
Arithmetic - - -	11–12 -	2 2	
Classics - - -	1– 3 -	3 0	
Mathematics - -	3– 4 -	3 0	
German - - -	4– 5 -	3 0	
	Total - -		£17 8 0
	Janitor's Fee -		0 2 6

The cost to the parent is therefore £17 10 6 in fees, exclusive of books, stationery, &c.

According to these Tables, in the supposed cases of four boys, the total annual cost of their education at the High School at Glasgow would be as follows:—

	A.	B.	C.	D.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
(*a*) *Public.*—Paid by the Burgh -	0 11 4	0 11 4	0 11 4	0 11 4
(*b*) *Private.*—Paid by the parent:				
In fees - -	10 12 6	12 8 6	18 14 6	17 10 6
In books, &c. (about)	0 10 0	0 10 0	1 0 0	1 0 0
Total - -	£11 13 10	13 9 10	20 5 10	19 1 10

And the average cost of each of such four scholars' education is 16*l.* 2*s.* 10*d.*

It must be remembered that this calculation of expense is merely *theoretical.* I do not mean to assert, and I do not suppose that many, if indeed any, boys in Glasgow High School actually take so many hours, and so many subjects of instruction or pay such large fees, as those laid down in the foregoing Tables for C. and D. The foregoing Tables only state what is possible in the case of very energetic and healthy boys, and of parents willing to pay. But, making allowance for the difficulties that attend these calculations in a school where there is no curriculum, I believe that my calculation is so far correct that the average sum paid by the *regular* scholars of this day-school, that is, those who get the whole of their school education here and go through

the complete course of English, arithmetic, one modern language, classics (including Greek), mathematics, and perhaps drawing, is from 12 to 16 guineas per annum for instruction, exclusive of books, stationery, and travelling.

II.—Class of Scholars in the School.

At the time of my visit to the school in May 1866, the janitor informed me that the number of boys entered upon the books or roll of the school for the current year was 715. Not uncommonly, however, the numbers mount by the end of the year (September 30) to 800. As many boys enter and leave again very shortly, some coming only for six months' book-keeping, some for a quarter's writing, some for a quarter's spelling or arithmetic. For, owing to the peculiar constitution of the school, a boy who enters only for three months, and enters only to one (*e.g.* the English) class, is just as much a High School boy as he who goes regularly through the five years' classical course. The numbers, however, never rise *above* 800.

This full number of 800 the janitor says is divided (upon a rough calculation) among the following social classes—

1. Sons of independent landed proprietors, or country gentlemen	20
2. Sons of professional men, clerical, medical, writers (*i.e.* solicitors) but *not* advocates (*i.e.* barristers)	50
3. Sons of first-class merchants, or wholesale traders, shipbuilders, manufacturers, millowners, &c.	200
4. Sons of first-class farmers, and superior employés, overseers, directors, managers, secretaries, &c.	150
5. Sons of second-class merchants, superior retail traders, the larger shopkeepers, &c.	340
6. Sons of inferior retail traders, smaller shopkeepers, clerks, and others with incomes of from 150*l.* to 250*l.* per annum	40
Total	800

From the above Table it will be seen that they who supply the largest numbers to the school (the bulk of the pupils in fact, 42·5 per cent. of the whole number on the roll) are the tradesmen or large shopkeepers of the city. The sons of wholesale and large retail traders, in fact, constitute 67·5 per cent. of the scholars. The sons of the professional men, and of the smaller shopkeepers, the higher and lower branches of the middle class, for the most part go elsewhere for their education. There are no sons of those living by mere manual labour.

The following Table will illustrate this question, and will also show, to a certain extent, the distances which boys travel to the school. It gives the occupation and distances from the school of the parents, or place of residence, of the 20 boys last admitted.

No.	Occupation.	Distance from School.
1.	Merchant	Half a mile.
2.	„	Three miles.
3.	Teller in a bank	Half a mile.
4.	Spirit merchant	„
5.	Pawnbroker	„
6.	Writer	Four hundred yards.
7.	Manufacturer	Half a mile.
8.	Spirit merchant	Two miles.
9.	Commission merchant	One mile and a half.
10.	Farmer	Seven miles.
11.	Owner of Print Works	„
12.	Farmer (but lodges in town)	Three hundred yards.
13.	Fund-holder	Four miles.
14.	„	„

No.	Occupation.	Distance from School.
15.	Manufacturer - -	One mile and a quarter.
16.	Spirit dealer - -	One mile.
17.	Shoemaker - - -	Half a mile.
18.	Farmer (but lodges in town)	„
19.	Farmer - - -	Three miles.
20.	Book Printer - -	Three quarters of a mile.

The boys come in by rail and omnibus as well as on foot. Thus of the above-mentioned 20 boys, Nos. 10, 11, 13, and 19 come by rail generally; Nos. 2, 8, 9, 15 by omnibus or on foot. The railway companies make some deduction in their fares in favour of boys attending school.

III.—Character of the Buildings and Premises.

The site of the school is a very central one; it stands quite within the city, near the centres of business, and is easily reached by the children of the shopkeepers and tradesmen. The class-rooms are of a fair size and for the most part well lighted, and they are well supplied with parallel desks, arranged so as to face towards the teacher.

Beyond this, however, there is little that can be said in favour of these premises. The site upon which the school stands had formerly a frontage towards the street; but the corporation has gradually allowed it to be encroached upon, and the space now devoted to the school is comparatively small. The school is now approached by a narrow side-way leading between a church and an iron foundry, and is completely blocked in by works of several kinds, the noise and smoke of which are very trying. The playground is not level and has an open area at the bottom of it, which is most inconvenient for any games of ball. There is no grass for cricket, no fives-court, no gymnasium, or any other place fit for boyish games. The offices are flushed with water, and are placed in a sufficiently retired situation, but their internal arrangements are most indecent. I think I never in any of the hundreds of schools I have visited in England saw any offices worse planned as regards decency. I am sure that a sensitive boy who had been modestly brought up would go through a good deal of suffering, and possibly do himself a real injury, before he would be able to bring himself to make use of that place.

Altogether these premises are, though in some points fair, not to be considered satisfactory.

IV.—The Quality of the Teaching.

The classical department is under two co-ordinate masters. At the time of my visit, however, one of the gentlemen had recently died, and the work was all on the shoulders of his colleague. This gentleman has been engaged as master in this school many years. He is evidently possessed of very considerable teaching power. He handles his class with great energy and much vigour and resource. His teaching is lively and animated and yet free from undue exaggeration of manner. He seems in short to have a faculty of teaching and to exercise it with ability. In the fullest part of the session he has 120 boys under him in the two years, viz., 80 in the second year and 40 in the fourth year. Each of the classes is tripartite, being divided into a senior, middle, and junior section. The chief point to be noticed in the method of this classical department is the system of *dividing the scholars into years*. In England we divide a school into *forms*, that is divisions in which boys are arranged according to their proficiency in attainments; and

boys are promoted from a lower to a higher form only on proof of the requisite improvement in attainments. This improvement is shown either by the marks of the term or by examination at the end of term, and in the better schools by some combination of those two tests. But in the classical department of this High School it is not so. This department is supposed to exhibit a *course* of five years teaching in Latin (and Greek). A boy when he enters is generally (unless an exception be made) in the first year of the course. Next session he is in the second year, and so are all others who were in the first year last session. In other words they are all promoted, whether they have shown that they have mastered the subjects of last session or not. Whole classes are moved up, in short, where we in England should only move up the leading boys. When a boy has been five years at Latin and Greek he has had all that the High School has to give him. He has finished his course and moves off at once. As a matter of fact, however, it seems that a small number ever enter the fifth year of the course at all; generally they leave by the end of the fourth year. On the question of this system of promotion by time, see page 25. Another feature of this method is the system of marking. The boys take places during each lesson and call out their places at the end of the lesson, and enter those places in their own marking tables; but the master does not mark every lesson in his register. At the beginning of a quarter he only marks one such lesson per week, but towards the close of the quarter two per week, in his own register. The days which shall be marked in each week are decided at the end of the week. The master puts five slips of paper, each containing the name of a day of the week, under a book, and a boy is deputed to step forward and draw. For the day or days which he happens to draw the boys have to supply their places from their own marking tables, and the master enters them as the places of the week. In weeks where there are two marking days it is contrived that no two successive days shall be marked. Saturday is a whole holiday in this as in other Scotch schools, and there are *no half-holidays*. The punishments in each department depend on the views of the master of that department. In this classical department the instrument of corporal punishment used is called "*the taws*." This instrument is a leather strap or cat of four tails, looking something like the strap that one sometimes sees for raising the window of a second-class railway carriage. This "taws" is, I am told, the ancient Scotch birch, and is always applied to the hand, except of course in cases where the master may be excited and the offender may get a cut over the head. But it is never applied to the bare back. The blows on the hand are called "palmies." The master told me he seldom inflicts "palmies" now; and I quite believe this. The discipline certainly was very good in this department. The boys were in perfect order and control, and yet very cheerful and willing. There was a great amount of life and vigour in the class, and the boys answered with much emulation and intelligence. At the same time there was no rudeness, and not nearly so much roughness of manner, as I had expected visible among them. I heard the second year boys go through a lesson in Cornelius Nepos. They construed a passage which they had previously prepared, in much the same manner as it would be done in an English school, but with a remarkable amount of intelligence and energy. They seemed to take much more interest in this, and in all the work that I saw them doing, than the boys in English grammar schools have appeared to me to take. They really looked almost as eager and animated as I have seen English boys look over a closely contested game of cricket. After the construing was ended the boys were questioned by the master and me (through him) on the rules of Latin

grammar and their application to the text of the author which they were reading. They answered very creditably, and showed a sound grounding in Latin syntax. I visited this class again on a subsequent day, and again tested their knowledge of grammar and power of applying it in composition, by hearing them work some exercises orally. These short "versions" they certainly did remarkably well, showing a readiness in construction—that is to say, in supplying the Latin words requisite for representing the English, in correctly inflecting them, and in placing them in their proper idiomatic order in the sentences—which quite surprised me. On another occasion I had an opportunity of hearing the fourth year class in a lesson of Virgil. The lads translated with much vigour and good sense, as if they had endeavoured with some success to enter into the spirit of the author. There was an absence of that *stupid* blundering which I noticed so frequently in London or country grammar schools, and which is evidence of the want of awakened intelligence, and of the absence of any sympathy with the author and any *desire* to understand his meaning. These Scotch lads, too, appeared to me to possess a larger vocabulary than those English lads of a similar age whom I had inspected, and to have a readier use of it. At any rate they translated with much more force and readiness, and with greater apparent power of substituting a second or a third rendering when the first or second did not satisfy the master. All good classical teachers will understand what I mean by this, and will recognize how much is implied in this facility of oral translation from such an author as Virgil. The master and I subsequently put to the class some questions on prosody, philology, criticism, and antiquities suggested by the text, and in all these matters they answered very creditably; not only better than was *generally* the case in such grammar schools as I visited in England, but in a manner really not unworthy of the scholars in the best of those schools. For example, these Scotch lads were tried in the same work as that in which the Deputy Grecians of Christ's Hospital were examined (see London Report, page 504), and I should say that this fourth class was of about the same average age as those scholars in Christ's Hospital. The Scotch class seemed to me, *as a whole*, to acquit itself as well as the best portion of the English class did, and there was certainly no considerable body of very inferior boys in the Scotch as there was in the English class.

On the whole I formed a most favourable opinion of Dr. Low's teaching of the classics, and it's effects on his pupils. This was the first classical teaching that I heard in a Scotch burgh school; and I admit that it most agreeably surprised me, and made upon me an impression which will not easily be effaced.

2. The French department is conducted by a foreigner who had been master of it for more than 30 years. He had rather more than 120 scholars on his roll this session, which was a less number than in the preceding session. The French course is only calculated for two years.

3. The English department is one of those most numerously attended, but I was unable to ascertain what number of scholars the master had had upon his roll this session. Like the master of the school of arithmetic, the English master was not willing that the number of his pupils should be published. I have, however, no doubt that most of the 800 pupils in the school enter this department for at least one hour in the day; and from this consideration some notion may be formed of the comparatively large income derived by this master from the school. Here in Glasgow, as in Perth and elsewhere, I heard complaints on the part of the teachers of language, art, and other less rudimentary subjects, that owing to the system of allowing boys to take what

subjects they liked, the lion's share of the spoil falls to the teachers of such elementary subjects as reading, writing, dictation, and arithmetic; and that the teachers of the subjects of a so-called "liberal" education are in danger of being starved out. This question I have discussed elsewhere (see page 54). The course in this department is calculated for ten years. Boys enter it at the early age of six years, and at all ages between that and 16 years.

4. The school of arithmetic, geography, and mathematics is conducted by a gentleman reputed to be one of the ablest and most successful teachers in Scotland. He has been engaged as master in this school some years, and had some experience previously as Principal of Belfast Academy. He is LL.D. of the University of Glasgow, and is evidently a superior teacher and a remarkable man. Like the English department, this branch of the school is very numerously attended, but the master declined to state the number of scholars on his roll. No doubt, however, almost all, if not all, the boys who come to Glasgow High School enter this department for either arithmetic, geography, or mathematics. The age of entry into this department is, however, somewhat later than that into the English department, it being apparently a fixed educational tradition with the Scotch not to commence instruction in arithmetic so early as in reading and writing. The boys generally enter this department for the purpose of learning arthmetic between the ages of 9 and 11 years. They are placed according to their attainments, which are ascertained by the master on examination, and assigned accordingly either to the junior or the senior class. All those who cannot yet work simple proportion are placed in the junior class; all those who can work sums in simple proportion (not including a knowledge of fractions) are placed in the senior class. I had the pleasure of hearing the master give instruction to one of the senior classes in arithmetic, and was greatly impressed by the order, method, and system which the teaching exhibited, and by the remarkable interest which the boys seemed to take in their work. As regards the instruction there was much that deserved notice, and especially the clear way in which the teacher explained principles, and the readiness with which he supplied the pupils with means of shortening the ordinary arithmetical processes. Pupils were required to know the reasons of the steps in their arithmetical processes, and they were often shown several methods of working. The teaching was therefore both rational and practical; and I think there can be no better basis for the instruction of a secondary school than arithmetical teaching, such as that given in Glasgow High School. The discipline of the class was excellent. Copying was prevented by several contrivances; but the emulation and excitement in the class were too great to necessitate much prevention of copying. The defects so common in the ordinary arithmetical and mathematical teaching in our English grammar schools of the second grade, to which I have alluded in my London report, page 155, are avoided by this master, and I do not wonder that his classes are popular.

Perhaps one of the most interesting things that came under my notice in my Scotch tour, and certainly one of the most interesting features of the education given in Glasgow High School, is the series of lectures on geology given by this master to his pupils in geography. These lectures, which are of a conversational and familiar kind, appear to excite the greatest interest in the scholars. I was present on the occasion of the last of these lessons, when the teacher was preparing to dismiss his class for the summer vacation, and was endeavouring to engage them to continue the study of geology during that time in the

localities where they were severally going to pass the holidays. For this purpose he would encourage the pupils to name the places where they proposed to spend the holidays, and would point out in each case in a few words what were the leading geological features of the locality so far as they could be understood from the course through which the pupils had passed. He would hold up pieces of rock or fossils and ask the pupil to look for similar things, telling him what conclusions might be deduced from the presence or absence of such things in given localities, and encouraging him to apply the general principles of geology which he had learnt during the quarter to those objects which would come before his eyes and with which he would be brought in contact during the holidays. Considering that no very great time is spent in these lectures, and that they do not take the place of severer studies, I think that they are a feature worthy of the commissioners' attention. A better holiday task I never heard given to boys than that which this master proposed to them in his concluding geological lesson. The class room was remarkably well supplied with maps and apparatus; and I noticed particularly the excellent *blank maps* of which the teacher seemed to make much use. But all these things are supplied at his own expense, and are of course private property.

The *writing and commercial school* is also very well attended, though not, as I was informed, so numerously as the schools of English and arithmetic. The master told me he had more than 500 pupils on his roll for this session, and that each half year he had a class of about 45 learning book-keeping. I examined the writing and dictation of the pupils present during one hour in this school, and consider that those subjects are well taught and with good results, but I was particularly pleased by the teaching of *book-keeping*. I am no great advocate of the study of book-keeping, especially as it is usually taught in English public schools where the boys are often simply set to copy and transfer long lines of figures from one ruled page to another without any understanding of the meaning of what they are doing. English private schoolmasters often teach this subject much better than the public schoolmasters; but at Glasgow High School the subject is really taught with much intelligence, and in a lively and interesting manner. A large class was questioned orally by the master in my presence on the substance of what had been taught during the past quarter, and they answered in a manner which showed that they were not merely learning by rote, but were receiving intelligent instruction in some of the financial principles of trade and commerce. I think the subject taught in this way may be made of real use to youths who are going into business, and, indeed, that the subject is one of which no man ought to be entirely ignorant.

The School of Art is a department for the teaching of drawing and painting, and is not so well attended as any of the others. It is conducted by an able teacher, who is evidently quite competent to give a sound instruction in the rudiments of art to those who appreciate the value of such instruction; but it appears that in Glasgow this instruction is the least valued of all the branches offered to the public by the High School. The master informed me that the number of pupils on his roll during the last quarter, which was a fair specimen quarter, was not more than 97 at the most, and that the average daily attendance throughout that quarter would not be more than 80. If this statement represents the ordinary rate of attendance at the drawing school, it seems that only about ten per cent. of the scholars in Glasgow High School learn drawing at the school; or in other words that of every ten scholars who enter the school only one enters the drawing school. It might perhaps naturally be

supposed that the persons who would patronise the drawing school would be the professional men, and that this branch would be less valued by the mercantile men. But the master informed me that quite the reverse is the case here: that art is *not* appreciated by the professional men so much as by the merchants; that during an experience of 23 years in this school he has not had much more than eight or nine sons of ministers under him, though there are many in other departments of the school; and that most of his pupils are the sons of merchants. These are the men, and not the medical men, architects, or other professionals who send their sons to the drawing school. One reason, probably, for this curious fact may be that the professional men's sons attend the classical school more than those of the merchants and tradesmen, and thus have less time and money to spend in the school of art. But at any rate it is worthy of remark that, so far as art is concerned, and so far as may be indicated by their disposition towards their High School, the mercantile men of Glasgow are not so much the enemies of culture as they are sometimes said to be.

Much the same difficulties are experienced by this master when endeavouring to take his pupils through a strict course of drawing, as I found prevalent among all English teachers, except those who, like the drawing master of Christ's Hospital, have the children entirely under their mastery. I gathered from the master that he did not altogether approve of the system pursued in our English Government Schools of Art; but that, even if he did, it would be most difficult to carry it out here. It would be too dull for the children. The parents, who have not themselves had any scientific training in art, know nothing personally of the subject, and are apt to be guided by the fancies and distastes of the children. The children are apt to look upon drawing as a pleasing relaxation, intended to fill up an hour agreeably, and often object to be carried through the grammar of the art. In fact there is a constant pressure upon the master to relax even the moderately strict course which he lays down for his pupils, and he is obliged by this external pressure to sanction some practices which are scarcely consistent with sound theory. Hence it is, also, that I found few advanced pupils in the school; none, for example, who could draw the human figure well from the plaster casts. Considering all these difficulties with which this gentleman has to contend, I was very favourably impressed with his teaching, which reminded me more of the instruction in drawing at Christ's Hospital than anything else I had seen in any other school; and which was, I think, the best instruction in this subject that I saw in any Scotch school. There is certainly an opportunity for a boy to learn drawing well here; and I have been told by some who have been pupils in this department that they most highly value the instruction they here received. The pupils generally enter at about the age of 12 years; sometimes, but rarely, as young as eight years; and they seldom remain beyond the age of 15 or 16 years.

On the whole, I was very favourably impressed with what I saw of the teaching in Glasgow High School. Most of the teachers are able men, and the instruction given in most of the departments is good of its kind, and well suited to the class of scholars for whom it is intended. As regards cost, it cannot, I think, be considered *cheap*, and yet it is not exorbitant. The expense of education in this school falls mainly upon private purses, and is supplied by private effort. It adapts itself, therefore, to the wants and needs of richer as well as poorer individuals. The school is well filled; and, considering the want of endowment, the scholars obtain in it good instruction at a reasonable price.

APPENDIX V.—THE ACADEMY, HAMILTON.

Preliminary.

This school presents several features of some interest. In the first place it is a *mixed school*, that is to say, it educates boys and girls together, without any separation whatever *in class;* and offers them all the same course of elementary and secondary education.

In the second place, it is both a *parochial* and also a *burgh* school; and thus represents an union of the primary and secondary instruction, and answers more or less accurately to the English grammar and elementary schools combined.

In the third place it is, or was at any rate up to two months previous to the date of my visit, both an *endowed and a proprietary school.*

These three features seem to me to be all of them worthy of careful attention; and I shall in reporting upon this school dwell particularly upon them.

As regards the early history of this institution I have very little information. It is, however, an ancient burgh grammar school, and it appears that it was formerly, as the high school of Glasgow now is, taught by several co-ordinate independent masters. It appears also that this arrangement was not considered to work well; and that in consequence of some disputes, and a general want of harmony and systematic co-operation among the masters, it was thought advisable to appoint a rector. The understanding with the rector was that he should receive, for his own benefit, all the fees of pupils, and should himself support and direct an efficient staff of assistants. It seems, however, that the rector failed to maintain an efficient staff of assistants. It was considered that the school was under his rectorship decidedly under-mastered, and not efficient. The number of scholars, which had at one time nearly reached 200, fell down to only 30, and the school came into a very low condition. At this juncture the rector died, and this occasion was taken to amend the constitution of the school, which had been already united with the parochial school, and thus to obtain for it the support of the heritors as well as that of the burgh, and to add to the endowment which would be received from these two sources, the interest and support of a proprietary. The institution which was thus created, was called "The Academy." This is a name which has been very commonly given in Scotland to revived or remodelled burgh schools, especially where, as has frequently happened, a proprietary element has been added to the old endowed establishment.

For this new academy buildings were provided by the heritors of the parish, the town council, and subscribers from the public; and the directorate consisted of the heritors, a committee of the town council, and subscribers of a certain amount.

The following, which is a copy of the amended constitution of the academy, will show plainly the nature of the changes thus introduced:—

Amended Constitution of the Hamilton Academy.

1. The object of the institution is to provide the means of instruction for the children and youth of the town and parish in all the branches of an enlightened, liberal, and Christian education. In attaining this object, advantage has been taken, in as far as possible, of the previously existing institutions or endowments founded in law or usage, so as to form of these, with the aid of voluntary subscriptions, one efficient institution, available to all classes of the community.

2. There shall be a board of directors who shall have the general superintendence and direction of the affairs of the institution. Each subscriber to the extent of 20*l.* and upwards, or his heirs or assignee, shall be a director, and any

number of subscribers, or corporation, or society, or Christian congregation, who shall collectively have subscribed to that amount, may appoint one, and in the case of the town council, two of their number to represent them as directors. These directors shall at each meeting appoint a chairman, and three shall form a quorum, and in the event of an equality of votes at any meeting the chairman shall have a casting vote.

3. Two general meetings of the directors shall be held in each year, on the first Monday of August and the first Monday of February, but a meeting may be called at any time by any one director on eight days' notice. The directors may at their annual general meeting in August appoint a standing committee of management, consisting of three of their number, to act for the ensuing year. At each half-yearly general meeting a report will be given by the rector, stating the progress of the institution, the number of pupils, collectively and in each branch, with any other information he may think requisite, or which he may be requested to report.

4. The rector of the academy shall be at the head of the establishment though devoting his more immediate and personal attention to the classical and higher departments; and he shall have well qualified assistant teachers to give instructions in the English and commercial branches, and any others not under his own personal care.

5. The rector shall be appointed by the magistrates and town council, and the parochial schoolmaster duly elected and passed by the University Examining Board, shall be appointed to this office. The assistant teachers shall be appointed and paid by the rector, but subject to the approval of the directors, who shall also have power to require the dismissal of any of them should they see cause.

6. The rector will draw his salary as parochial schoolmaster, and also the whole school fees, which fees shall be charged at such rates as may from time to time be fixed by the heritors and the directors.

7. The directors shall have power from time to time to regulate the hours of teaching, and also the branches to be taught at the academy in addition to those encumbent on the parochial schoolmaster by law or arrangement.

8. The burgh salary of *l.* shall either be paid to the rector or applied otherwise for the benefit of the institution, as the town council, with concurrence of the directors, may from time to time decide.

9. The rector shall have the use, rent free, of the buildings and ground belonging to subscribers for purposes connected with the establishment, and hall in consideration thereof pay the feu duty insurance interest of debt and any repairs and other current charges affecting the same, so as the directors may be put to no expense in connexion therewith.

10. The property of the academy and ground attached (exclusive of the property of the heritors) shall be vested in and held by such trustees as have been or may be named by the directors.

11. The regulations and provisions herein-above contained shall be and form the constitution of the academy from and after this date, the original constitution thereof being rescinded in so far as not herein-above repealed; but the directors shall still have power at any time to rescind, alter, or amend any of the said regulations and provisions above set forth, as may appear to them most conducive to the prosperity and usefulness of the academy; and they shall also have power from time to time to enact such rules and byelaws for the regulation of the institution as they may think expedient and proper.

Hamilton, 3rd April 1863.*

* This constitution was altered on the 5th April 1866, just two months before the date of my visit; on which day the directors met and passed a minute rescinding the second and third articles, and enacting that the magistrates and town council of the burgh of Hamilton and their successors in office should thenceforth be the directors of the academy, the existing directors retiring, and the new directors assuming their duties and obligations. I am told that the reason of this change was, that it was found that very many of the subscribers were either dead or removed from the town, and had ceased to take any interest in the institution. The remaining subscribers therefore agreed, in consideration of the council assuming their debt (about 300*l.*), to hand over their interest to that body for the public benefit. Thus the directors of the academy are now the heritors and the town council, and the proprietary element, strictly speaking, no longer exists.

In accordance with the provisions of this amended constitution, Mr. Blacklock was appointed parochial and burgh schoolmaster and rector of Hamilton academy. This gentleman I found in office at the date of my visit. I shall speak further of the staff of the academy under the fourth heading of this report. I will only remark here that it is necessary that the Commissioners in reading this report should bear in mind that the rector had, at the date of my visit only been three years in charge of the school; and that the school was, at the time he took charge of it, in a *very* low condition. It had fallen down from upwards of 100 to only 30 scholars; and all those who are familiar with scholastic details will readily understand what an amount of demoralization such a statement as that conveyed in these figures implies, and what uphill work the new rector must have encountered. I may add that the number of scholars on the roll of the school in June 1866 was 252, a considerably larger number than any previously found on the school roll; that of this number 223 were present on June 4th, 1866, the first day of my visit to the school; and that the provost, to whose courtesy I am indebted for copies of the above-mentioned documents and for other valuable information, gave me to understand that the town had now a high opinion of the school, that the directors were well satisfied, and that they considered its condition to be creditable to the new rector. I shall presently venture to give my own opinion formed after two day's visit and examination of the scholars.

The curriculum of this school is, as I have stated, intended to combine a course of secondary with one of primary instruction. It is intended to be both a lower and a middle school, guaranteeing a sound education in the elements at elementary rates of payment, while offering also to all who choose to take it a more advanced English education in grammar, geography, and history, at increased rates of payment, with the option of also taking Latin, French, and mathematics at still higher rates.

With the view of providing for these several objects, the subjects of the curriculum are divided into two separate parts, one called "The Ordinary Branches," and the other "The Higher Branches." The following prospectus will show this division of the curriculum, and the scale of fees charged for the several subjects, and for certain combinations of different subjects.

HAMILTON ACADEMY.—SCALE OF FEES PER QUARTER.

Ordinary Branches.

	s.	*d.*
English Reading	3	0
Reading and Writing	4	0
Reading, Writing, and Arithmetic	5	0
These Branches, with Book-keeping	6	0
Do. with Grammar, Geography, and History	7	6
Plain and Fancy Needlework, Knitting, &c.	1	0

Higher Branches.—N.B.—Those taking the higher branches are entitled to take all or any of the ordinary without additional charge.

Latin, French, or Mathematics	10	0
Latin, with Greek, French, or Mathematics	12	0
Any three of higher Branches	14	0
All Branches	15	0
Pens and Ink	0	3
Heating and Cleaning	0	6

Quarter Days:—3rd August, 19th October, 11th January, and 28th March.

N.B.—All Fees payable in advance.

The Commissioners will have remarked in Articles IV.—V. of the "Amended Constitution" what are the qualifications required in the rector, what his position and duties are, and what is the mode of appointing him. They will have observed also that he has the nomination, subject to the continued approval of the directors, of his own assistants; and that no mention whatever is made of his liability to removal.

Having now given a preliminary sketch of the character and objects of this school, I proceed to describe the results of my visit to it in June 1866 on the plan proposed in page 5 of this report.

I.—Cost of the Education.

(*a*) *Public, i.e.* by endowment or contribution.

This school being a parochial and a burgh school combined receives an endowment from both the parish and the burgh. The amount of this endowment is 70*l.* per annum from the parish, and in 1866 only 11*l.* 2*s.* 4*d.* from the burgh. There are also contributions from friends and patrons of the institution for the purpose of furnishing prizes to the pupils. In 1866 these contributions amounted to 17*l.* 10*s.* These sums form, as I was informed, all the public income of the school, the whole of the rest of its resources being derived from the payments of scholars. At the time of my visit there were 252 scholars upon the books of the school, and 223 in actual attendance. So that, taking the average attendance to be about 240 scholars, the total public expenditure upon them is only about 8*s.* 3*d.* per head per annum, which is distributed in the following proportion:—The heritors contribute about 5*s.* 10*d.* per scholar per annum; the corporation about 11*d.*; and voluntary contributors about 1*s.* 6*d.* The annual cost, therefore, to the corporation of Hamilton is only 11*d.* per head for the education of each scholar in its burgh school.

(*b*) *Private Cost.*

There is the same difficulty in ascertaining this result here as is found in the case of Glasgow High School. I shall be obliged here, as in that case, to suppose that I am a resident in Hamilton, and have four sons aged respectively A=10 years, B=12 years, C=14 years, D=16 years, whom I wish to learn at the school respectively—

A. Arithmetic, English (including geography, &c.), drawing, and writing.
B. Arithmetic, English (including geography, &c.), drawing, French, and Latin.
C. Writing and arithmetic, French, mathematics, and book-keeping.
D. Latin, Greek, and the higher branches generally.

Then, on the above hypothesis, the following tables will show the cost to me, the parent, for each of these four boys:—

A has 25 hours per week.	£	s.	d.	
School Fees for Instruction - - - -	1	10	0	per annum.
School Charges for Materials, Cleaning, &c. - -	0	3	0	„
Expense of Books* - - - - - -	0	1	6	„
Total cost to parent per annum -	1	14	6	

B has 25 hours per week.	£	s.	d.	
School Fees for Instruction - - - -	2	8	0	per annum.
School Charges for Materials, Cleaning, &c. -	0	3	0	,,
Expense of Books* - - - - -	0	15	0	,,
Total cost to parent per annum -	3	6	0	

C has 30 hours per week.	£	s.	d.	
School Fees for Instruction - - - -	2	8	0	per annum.
School Charges for Materials, Cleaning, &c. -	0	3	0	,,
Expense of Books* - - - - -	1	0	0	,,
Total cost to parent per annum -	3	11	0	

D has 30 hours per week.	£	s.	d.	
School Fees for Instruction - - - -	3	0	0	per annum.
School Charges for Materials, Cleaning, &c. -	0	3	0	,,
Expense of Books* - - - - -	1	0	0	,,
Total cost to parent per annum -	4	3	0	

According to these tables, in the supposed case of four boys, the total annual cost of their education at the Academy, Hamilton, would be as follows :—

Cost.	A.	B.	C.	D.
(a) *Public*, paid by the burgh, the parish, and contribution - -	0 8 3	0 8 3	0 8 3	0 8 3
(b) *Private*, paid by the parent - { In fees - -	1 10 0	2 8 0	2 8 0	3 0 0
(b) *Private*, paid by the parent - { In books, &c. -	0 4 6	0 18 9	1 3 0	1 3 0
Total - -	2 2 9	3 14 3	3 19 3	4 11 3

And the average cost of the four scholars' education is 4*l.* 11*s.* 10½*d.* per annum.

The same education is offered to girls at this school, with the additional charge, if they do not take any of the *higher branches*, of 4*s.* per annum for instruction in needlework if they wish to have it. If, however, a girl takes any of the higher branches she may receive instruction in needlework without additional charge.

II.—The Grade of the Scholars.

(*a*) *Their Social Condition.*

I have mentioned that there were 252 scholars on the roll of the school at the date of my visit. Of these 136 were boys, and 116 girls. The rector, to whose kindness I am indebted for this and much other valuable information, and whose frank courtesy and liberality, in allowing me to inspect and interrupt by examination the work of the school, I cannot too gratefully acknowledge, informed me that an

* The rector informed me that the cost for school books and such materials as are not provided by the school is for the first year, or lowest class, about 1*s.* 6*d.* per annum ; for the middle class about 15*s.* per annum ; and for the highest class about 20*s.* per annum.

analysis of the admission register showed that this total number of 252 scholars might be distributed among the following different social classes, thus :—

—	Boys.	Girls.	Total.
1. Children of independent landed proprietors - -	4	3	7
2. „ wholesale producers, merchants, and professional men.	17	9	26
3. „ tradesmen, farmers, and shopkeepers -	93	88	181
4. „ clerks - - - - -	13	8	21
5. „ labourers - - - -	9	8	17
	136	116	252

From the above table, it appears that the great bulk of the scholars in Hamilton Academy is drawn from the shopkeeper, trading, and farming classes; these constituting in fact 71·82 per cent. of the whole number on the books.

The following table will further illustrate this question. It gives the occupation of parent, and distance from school of the residence of 20 scholars whose names are taken consecutively from the admission register. It was usually my practice to ask for the 20 scholars *last admitted* on the register. But the rector informed me that this would not give a fair representation of the social position of the children, the months of April and May being exceptional. I took, therefore, 20 consecutive admissions from a month in 1865 which was not exceptional :—

No.	Sex.	Occupation of Parent.	Distance from School.
1	Girl - -	Master cork-cutter - -	400 yards.
2	Do. - -	Police inspector - -	800 „
3	Do. - -	Farmer - - - -	6 miles (*a*).
4	Do. - -	Grocer - - - -	800 yards.
5	Boy - -	Private property - -	4 miles (*b*).
6	Girl - -	(Sister of the preceding) -	Do. (*b*).
7	Boy - -	Master cooper - -	400 yards.
8	Girl - -	(Sister of the preceding) -	Do.
9	Do. - -	Farmer - - - -	70 miles (*c*).
10	Boy - -	Gentleman's coachman -	3 „ (*d*).
11	Do. - -	Toll-gate keeper - -	2 „
12	Girl - -	Spirit dealer - - -	1 „
13	Do. - -	(Sister of preceding) -	Do.
14	Boy - -	Private property - -	1½ „
15	Do. - -	Ironmonger - - -	200 yards.
16	Do. - -	Farmer - - - -	3 miles (*e*).
17	Girl - -	Private property - -	200 yards.
18	Boy - -	Gentleman's coachman -	3 miles (*d*).
19	Do. - -	Coal-owner - - -	6 „ (*f*).
20	Girl - -	Clothier - - -	200 yards.

(*a*) This girl comes to lodge with a friend in the town from Monday to Friday, and goes home from Friday evening till Monday morning.

(*b*) This boy and girl, aged respectively 13 and 11 years, walk all the distance out to school and back daily (eight miles).

(*c*) The father of this girl is a farmer living near Carlisle. She lodges in Hamilton in order to attend the school.

(*d*) These two boys are brothers, the younger aged only six years; yet they both walk all the way to school and back every day (six miles), and are both very regular in their attendance.

(*e*) This boy, who walks to the school and back every day (six miles), had only been absent from the school one day in the three years during which it had been re-opened. There are others whose attendance is just as good walking eight miles to school and back every day.

(*f*) This boy comes three miles by train and walks the remaining three miles to school every day.

(*b*) *The Length of Time they stay at School.*

This school having no regular, or at least no compulsory, curriculum, but scholars being admitted to any subject and for any length of time from a quarter of a year upwards, the duration of school life of course varies here, as at Glasgow, exceedingly. There is the additional complication in the case of this school that it is a parochial as well as a burgh school, and is attended by labourers' children. As a general rule, I was informed, the boys who are intended for professions go to the neighbouring University of Glasgow at about 16 years of age; and those who go into business leave the school and enter offices at about 14 or 15 years of age. This school is, therefore, according to the definition given in my report on secondary education in London, page 6, a *middle school of the second grade*. There was not at the time of my visit any scholar who had completed his 16th year. The girls stay at school till they are from 13 to 16 years of age, the utmost length of their school life being about nine years.

III.—Character of the Buildings and Premises.

The buildings of this school are situated on a kind of promontory or angle formed by the confluence of two small brooks. The apex of the angle points northwards, and it is approached by a bridge carried over the eastern brook. The boys and girls are entirely mixed in the class-rooms and playground. There are, of course, separate offices at distinct sides of the playground, but there is no separation in the playground itself, nor any covered place for play in wet weather. The playground is gravelled, and there is no grass. The buildings consist, besides offices, of one large block containing the rector's house, three good-sized class-rooms downstairs, and two smaller rooms upstairs. The rector teaches in one of the upper rooms, the mistress in the other, and the three assistant masters in the three ground-floor rooms. These rooms are generally well furnished, and properly supplied with maps, apparatus, and other requisites. The main defects of these buildings are (1) a want of water supply, the offices are not flushed with water; (2) want of separation between boys and girls at play; (3) a slight difficulty of access on two out of the three sides, east and west. The advantages are, on the other hand (1) an airy, cheerful, and picturesque situation; (2) quiet; the school being not far from the town, and yet cut off from it by the brooks; (3) the situation is reckoned remarkably healthy.

Altogether, these premises, though capable of improvement in some points, are superior to those of most of the second grade grammar schools which I visited in London, and to almost all those of the second and third grades which I visited in the counties of Oxford, Berkshire, and Hertfordshire.

IV.—The Quality of the Teaching.

(*a*) *The Qualification of the Teachers, Educational Status, &c.*

The staff of this school consisted at the time of my visit of—

(1) The rector of the United Institution; also burgh and parochial schoolmaster, Mr. Blacklock. Trained for one year at the Normal College of the Established Church of Scotland at Glasgow, three years in charge of this academy, and previously experienced as a parochial schoolmaster. Superintends and is responsible for the entire education of the academy, both of boys and girls. Takes as his special subjects of instruction Latin, French, and mathematics. Appointed by the Heritors and Town Council jointly (see page 134). Receives the endowment and fees, and appoints and pays the rest of the staff.

(2) The first English master, Mr. Muir. Was a pupil teacher, and a student in Glasgow University. Teaches English and arithmetic. Salary, 70*l.* per annum.

(3) Second English master, Mr. Moodie. A trained and certificated teacher. Teaches English and arithmetic. Salary, 70*l.* per annum.

(4) Writing and drawing master, Mr. Williamson. A trained and certificated teacher. Teaches penmanship, writing generally, a little English, and drawing. Salary, 70*l.* per annum.

(5) Mistress, Miss Watson. A trained and certificated teacher. Teaches piano playing and needlework, and the elements to the infants and younger children. Salary, 60*l.* per annum.

Besides these there is an occasional lecturer on elocution, who receives 20*l.* per annum.

The proportion of teachers may, at first sight, appear small for the number of scholars, but it must be remembered that a large number of these scholars take only English subjects. As I have remarked, all the subjects are optional; but the practical effect of this absence of pressure has been, first, that *all the scholars* who are old enough take, besides the elements, English grammar and geography; secondly, that the number of those learning Latin and mathematics was rapidly increasing at the date of my visit; and, thirdly, that the rector expected in 1867 to have a class in Greek. I beg the Commissioners' special attention to this feature in these Scotch burgh schools, whereby the subjects for which there is a demand among the middle classes are offered to them at fair prices. Classics and mathematics are not *thrust* upon them either with or without the English subjects, as in our English grammar schools, but they are offered these subjects, and at reduced rates if they take several of them. The result is that they come to the school to buy English, believing, as in England, on a short-sighted policy, that this is all that is required for prosperity in life, and that they are induced, by the irresistible offer of a bargain, by the example of professional mens' sons, and the influence of the teacher, to take classics and mathematics too. But I have spoken more on this subject at pages 15–23. The scholars are divided into eight classes, the principle of classification being, as far as possible, duplex, based upon *English* and *arithmetic;* but considerable exceptions must, of course, occur. The distribution of the scholars among the several classes was, at the date of my visit, as follows. It will be remarked that there were no girls in the first class, which consisted of eleven boys of the average age of scarcely 14 years, who had been at the school, on an average, scarcely two years and a quarter.

The following table gives the number present in each class on the day of my visit:—

Class.	Boys.	Girls.	Total.
I.	11	0	11
II.	14	9	23
III.	15	19	24
IV.	19	16	36
V.	15	15	30
VI.	18	15	33
VII.	13	12	25
VIII.	23	18	41

Of this total number of 223 children, all were learning English, geography, and grammar; 26 were learning Latin; 25 were learning French; 9 were learning mathematics (Euclid and algebra); 30 were learning drawing; 10 were learning to play the piano. The following table shows the division of time among the different teachers and subjects :—

Hours	9	10	10·30	11	11·15	12
Mr. Blacklock	I. Latin Exer.	Do. Cæsar		–	I. French	Music.
„ Muir	II. English	Bible	Gr. or Geo.		V. Gr. or Geo.	
„ Moodie	III. English	Do.	Gr. or Geo.		III. IV. do.	
„ Williamson	IV. V. Writing	Do.	VI. English		VI. Writing	
Miss Watson	Pianoforte	VII. English		VIII. English		

(*continued.*)

Hours	12·15	1	2	3–4
Mr. Blacklock	II. Latin	Interval	Geom. Alg.	II. French.
„ Muir	V. English	I. English	I. II. Arith.	—
„ Moodie	IV. English	Interval	III. IV. do.	Unprepared.
„ Williamson	I. III. Writing	II. Writing	V. VI. do.	Drawing.
Miss Watson	VIII. English	Pianoforte	VII. English	Needlework.

The hours are the same for all days of the week except Saturdays and Sundays, when there is no school. The work is heavy for the teachers while it lasts; but they have their evenings free, two days a week, besides vacations, which they can call their own, and no responsibility in regard to the children, except when they are at school.

(*b*) *Method of Instruction.*

The rector and assistant teachers were good enough to permit me to hear them teaching and to conduct their classes in the usual order in my presence. Beginning with the lowest class I went through each class and heard the instruction in English, Latin, French, and mathematics. I was much impressed by the vigour and energy shown by teachers and scholars. The order and discipline were remarkably good; and yet there was great vivacity and life. The mistress, for example, kept her large class of 66 children (the VIIth and VIIIth combined) in excellent order; and yet the children were much animated and excited.

The system, method, and intelligence in handling masses of children which are, or may be, acquired by trained teachers told very powerfully in the case of these persons. The children took places without disorder or confusion, and evidently enjoyed their work.

V.—Effect of the Education.

(*a*) *Attainments of the Scholars.*

The rector was good enough to permit me to question the scholars both orally and by means of papers. There were some difficulties in the way of the written examination, because the teachers were somewhat afraid, in the case of a school only recently two years more into public favour, of breaking up the classes, and standard hitherto attained in order to allow me to examine the children. The case of the poets and are not used to written examinations, but only to oral composition; and nation at the close of the session, seemed hardly to me to be any reason

As a secondary school

work or to treat questions in writing. However, I was able to form a pretty complete judgment of the value of the work of the last three years in the academy. The *reading* seemed to me to be satisfactorily taught. The accent of these children is not pleasing to an Englishman; but it was generally correct, and by no means vulgar. The *writing* appeared to be very well taught; except that the girls learn an angular hand, which always seems to me to be objectionable. The handwriting of the papers worked for me by the two first classes in the school, consisting of 32 children, was decidedly good. Their *spelling* was also very correct. They wrote the piece in Paper XXI. from the beginning to the word "surprise" with only 25 errors among them, 18 of them being perfectly correct. The lessons in arithmetic were intelligently given. The first class, 11 boys, under the rector, was working at vulgar and decimal fractions. The first 32 children in the school tried Questions 5, 3, 4, 7, and 8, in Paper I. The time allowed them for that and the dictation together being an hour and a half. They tried on an average $3\frac{1}{2}$ sums each out of the 5 given, and got an average of $1\frac{5}{8}$ sums each right. This was the weakest work I saw in the school. It must, however, be remembered that the children were not used to a written examination. The average age of these children was $13\frac{1}{2}$ years, and they had been in the academy on an average about one year and ten months.

The following table shows this result, and may be usefully compared with some in my English report:—

No.	Sex.	Age.	Time in Academy.	In what English Class.	Errors in Dictation.	In what Arithmetic Class.	Sums attempted.	Sums Right.
1	Boy	14	1 year 6 months	I.	0	I.	4	2
2	„	14	2 „ 6 „	„	0	„	4	3
3	„	13	2 „ 6 „	„	0	„	5	3
4	„	13	2 „ 6 „	„	0	„	4	2
5	„	14	2 „ 9 „	„	0	„	5	3
6	„	14	2 „ 0 „	„	0	„	4	2
7	„	14	1 „ 9 „	„	0	„	5	3
8	„	14	3 „ 0 „	„	0	„	5	2
9	„	15	0 „ 10 „	„	0	„	5	3
10	„	13	2 „ 10 „	„	0	„	3	2
11	„	12	3 „ 6 „	II.	2	„	3	1
12	„	12	1 „ 0 „	„	0	„	5	$1\frac{1}{2}$
13	„	15	2 „ 0 „	„	1	„	5	$1\frac{1}{2}$
14	„	15	1 „ 0 „	„	1	„	2	1
15	„	14	3 „ 0 „	„	1	„	3	1
16	„	12	One week	„	1	„	4	$1\frac{1}{4}$
17	„	11	2 years 0 months	„	0	„	4	1
18	„	14	1 „ 0 „	„	0	„	1	0
19	„	14	2 „ 9 „	„	1	„	4	3
20	„	13	0 „ 3 „	„	0	„	3	1
21	Girl	14	2 „ 0 „	„	2	„	4	2
22	„	14	1 „ 3 „	„	1	„	4	$1\frac{1}{2}$
23	„	12	0 „ 8 „	„	0	„	2	$0\frac{1}{2}$
24	„	15	2 „ 9 „	„	0	„	4	$2\frac{1}{4}$
25	Boy	13	2 „ 0 „	„	1	II.	2	0
26	„	12	3 „ 0 „	„	3	„	3	2
27	„	12	2 „ 0 „	„	3	„	2	2
28	„	14	2 „ 0 „	„	0	„	2	0
29	„	13	2 „ 9 „	„	2	„	3	2
30	Girl	12	2 „ 9 „	„	0	„	3	1
31	„	14	2 „ 9 „	„	1	„	2	0
32	„	14	0 „ 4 „	„	5	„	2	0

ior boys were learning grammatical analysis on Dalgleish's
IV. is was well taught by the first English master, and the boys
V. he subject very creditably. The rector finds that this
VI. alysis is of the greatest use to the boys in helping them
VII. Latin construction. The first *Latin* class was read-
VIII. ad not yet attempted any study of the poets.
———— received their first grounding in Latin at the

academy and the preceding table will show how short a time they had spent in this study. Under these circumstances they could not, of course, be expected to write Latin prose, to translate new passages at sight, or to render the text of their author into well-chosen English. Short of this, however, their work was good. They construed carefully and with decided intelligence from the portion of Cæsar which they had prepared for the day, and from the back work. They were thoroughly well grounded in grammar as far as they went; and by constant practice in exercises they knew how to apply the rules they had learnt. It certainly struck me that they would, if they advanced at the same rate of progress, be by the age of 15 or 16 quite as forward in knowledge of Latin as the average of boys at an English Grammar School, though perhaps not quite so well advanced as the best scholars of such a school. No Greek was learnt at the date of my visit to the academy. The rector hoped, however, to have a class in Greek in the course of the following year. The *French* instruction, also taken by the rector, was like the Latin very elementary hitherto. What, however, they professed the children knew well, and I was agreeably surprised at their accent. None of them had been learning French more than a year and a half. The *mathematical* attainments were at present not high, even considering the age of the scholars. But this was a new subject this year, and the boys had made very creditable progress during the year. It will be remarked that no girls had at present joined either the Mathematical or Latin class. The mathematical class consisted of 10 boys. They had done the first book of Euclid, and algebra as far as the beginning of simple equations. So far their knowledge was thoroughly sound and good; and their style of doing the Euclid orally with the use of the black board was very intelligent.

The only other subjects which I shall here mention are drawing and singing. This school has been so short a time revived, and the pupils are at present so young, that the efforts of the rector and his assistants have been hitherto mainly directed towards improvement in the essential elements of English and arithmetic, and there has not been much opportunity for studying art. Drawing has been, however, taught, but almost entirely from the flat. The school is not supplied with the requisite models and apparatus for carrying on a course of thoroughly sound instruction in the art of drawing; and it seems questionable whether, if each scholar were required to go through a severe course of study, such a practice would not be very unpopular. At any rate, the drawing was at the date of my visit merely empirical, consisting of outline and shading from the flat. Vocal music is taught upon the tonic-sol-fa method; and it will be seen from the time-table on page 139 that the whole school practises together for a quarter of an hour daily. It will also be remarked that there is instruction in needlework for the girls once a week.

My general impression of this school is, on the whole, decidedly favourable. It is, as I have said, both a primary and a secondary school combined. The secondary element is of only two or three years growth, and is therefore still in its infancy. The rector had not, at the date of my visit, been long enough in the school to know precisely up to what age he would be able to induce scholars to stay, or how far to carry the studies in language and mathematics. The French, Latin, and mathematics were, when I examined, only of three years growth. In two years more the rector, who was by no means satisfied with the standard hitherto attained, hoped to work up the Latin to some knowledge of the poets, and more difficult prose writers; to add some Latin prose composition, and to have a class in Greek. There did not seem to me to be any reason why the school should not perform this or more. As a secondary school

of the third grade, it seemed to me to be already in a very good condition, and to have commenced its career in the second grade very satisfactorily.

(*b*) *Tone and Discipline of the School.*

Two difficulties, which present themselves in the way of middle-class education in England, appear to me to be successfully met and overcome in this school. One is the danger to tone and discipline which is supposed to arise from the combination of boys and girls in the same school; the other is the danger to practical success which is supposed to be incurred by those who attempt to mix together in the same school the children of labourers and shopkeepers, of employers and employed. The tone and discipline of this school appeared to me to be thoroughly satisfactory. I noticed no levity, trifling, or other difficulties from the mixture of boys and girls in the classes. On the contrary, I rather came to the conclusion that the presence of the girls stimulated the boys to exertion, and softened their manners, without appearing to work any evil effects on the carriage or conduct of the girls. Neither did any difficulties appear to arise from the mixture of social classes. Sons of labourers sat on the same benches with the sons of tradesmen and farmers, and success in school-work was the sole title to distinction; yet I did not learn that any complaints had been made of any supposed deterioration of the children of the middle by those of the lower classes, nor did I notice any signs of jealousy, contempt, or ill-feeling of any sort among the children of different social grades. On such a subject we have in England much to learn from such a school as this.

APPENDIX VI.—THE ROYAL ACADEMY, INVERNESS.

Preliminary.

The Royal Academy of Inverness is an ancient burgh school, but, as has been the case with so many of the Scotch burgh schools, the burgh, or endowed, institution was in 1793 merged in or united with a proprietary institution, and the two combined were by royal charter constituted an academy in that year. This school is interesting and affords useful materials for the observation of the Commissioners, mainly on two grounds, viz., in the first place, that it is a combination of an endowed and proprietary school; and, in the second place, that it affords an education to girls as well as to boys. I have been informed that at the time when the proprietary element was added to the school those who were concerned in reforming it were desirous of discontinuing the education of girls. They considered the mixture of girls and boys in one school to be an evil; and they felt it to be opposed to the wishes and feelings of most parents. They were, however, unable to exclude girls from the benefits of the institution, because the school was a *burgh school;* and any burgess had therefore a right to demand education for his daughter. Under these circumstances they were compelled to continue the education of girls in the new academy; and until very recently were taught in the same school and class rooms with the boys. There is a separate building for the girls adjacent to that for the boys.

By [illegible] the directors of the Royal Academy were to consist, in the first place, of the provost and other magistrates of the burgh, the

moderator of the Presbytery of Inverness, and five other persons to be annually elected by the Commissioners of Supply of the county of Inverness (these directors representing the general public); and, in the second place, of all subscribers to the new academy of 100*l.*, or of 50*l.* with this distinction, that in the case of subscribers of 100*l.* the directorship descended to their heirs male; but in the case of subscribers of 50*l.* it ceased with the term of their natural life. This second class of directors represented of course the proprietary or commercial interest in the new institution. The directors were, by the charter, empowered to elect proper teachers, to appoint salaries out of the funds of the institution, to dismiss the teachers, and to regulate and govern the academy in every respect. There were to be a rector and four masters, whose departments of teaching were to be allotted by the directors; and the directors were to meet once a year to audit accounts, and on some other day or days for the purpose of examining the different classes. Byelaws were drawn up by the directors in 1840 and continued in force till 1863. Under these regulations the control of the rector was very slight, almost nominal, in fact; the school being worked in much the same manner as that in which the High School at Glasgow is now, by a number of practically co-ordinate masters. I am informed that this system was not found to work satisfactorily; the chief defect being that the commercial master made all the profits, and that the classes for linguistic and scientific instruction were not sufficiently well attended to provide their teachers with a maintenance. At that time each master, as at Glasgow, received his own fees, and had besides a small salary. The salary of the rector was 50*l.* per annum.

In the month of April 1863, three years previous to my visit to the academy, new byelaws were made by the directors, whereby a change was effected in the management of the school. The system of co-ordinate masters was abolished: the rector's salary was raised, he was made supreme, constituted in fact a head master, in the English sense of the word; and instead of each master receiving his own fees, each was to be paid a fixed salary. It was under this system that I found the academy working at the date of my visit in June 1866. The regulations of 1863 were, however, no longer in force, having been superseded by amended regulations drawn up in 1866, and finally passed on the 1st of May in that year, only six weeks before the date of my visit. In these new regulations there is nothing unusual, or so remarkable as to merit the Commissioners' notice, except, perhaps, the minuteness with which the duties of the rector, the number of hours he shall occupy in teaching and superintending respectively, and the requirements of deference and obedience to him from the other teachers, are laid down. This system of government by a rector or head master is, as I have explained elsewhere, a novelty in Scotland. It is a "new thing," and is opposed to all usage and prescription, to the feelings of the general body of teachers, and to those also of a large portion of the public. The necessity for new regulations dwelling upon and carefully defining the above-mentioned particulars, seems to point to the existence or anticipation of abuses and dangers arising out of the inauguration of the new regime. Those dangers would of course be, (a) insubordination to the rector on the part of the assistant masters, or want of their hearty co-operation with him; (b) tyrannical or overbearing conduct on the part of the rector; (c) neglect by the rector of the active work of teaching in the school, under the plea of a general superintendence, and practical inefficiency, and want of activity, in consequence.

The rector resigned his office shortly after my visit to Inverness, and the mathematical master was elected rector in his place. As a stranger

to Scotland and to Inverness, admitted to the school by the courtesy of the directors and the rector, and as having by the terms of my instructions been compelled to make my visit to this academy as brief as possible, I do not presume to pronounce whether any of the above-mentioned evils had arisen or were reasonably expected to arise. I shall as far as possible avoid drawing inferences, particularly such as might be damaging to persons or to the academy. There are, however, certain facts which came under my own observation, and which I think I am bound to lay before the Commissioners, as bearing on this question of school government.

(1.) I found a very strong feeling against the rector existing on the part of some of the subordinate masters. This may or may not have been justifiable; but at any rate it was a proof that the system of head-mastership was not working well.

(2.) One of the assistant masters informed me that since his appointment, less than two years previously to my visit, there had been numerous changes in the persons composing the staff; that in fact four French teachers, three English teachers, and one classical teacher had resigned their appointments. The changes seem to have been unusually frequent.

(3.) The numbers in attendance, which had risen largely up to 1865, were decreasing. This may have been due to a change made at the beginning of the session of 1865–6, whereby the fees were raised 30 per cent. At all events, a rival school, called the High School, which I have mentioned elsewhere, had just lately received an accession of pupils removed from the academy.

(4.) There was an evident want, of which I have said more hereafter, of that zealous and energetic work on the part of some of the masters, which I found generally prevailing in Scotland.

As this was the only case of a burgh school coming under my notice in which all the teachers were paid by direct salaries, independent of the number of their pupils, the Commissioners may wish to know what those salaries were. The account was furnished to me after the changes which took place subsequently to my visit, when the mathematical master had been made rector. The salaries then were—Rector, 250*l.* per annum; Lady Superintendent, 120*l.*; Classical Master, 130*l.*; English Master, 150*l.*; French Master, 120*l.*; Writing Master, 80*l.*; Junior English Master, 60*l.*; Drawing Master, 100*l.*; Music Master, 150*l.*; Music Governess, 70*l.*; Junior Music Governess, 30*l.*

I.—Cost of the Education.

(*a*) *Public Cost.*

The secretary to the academy was good enough to furnish me with a statement, whence it appears that the burgh of Inverness contributes annually to the academy the sum of 79*l.* 3*s.* 5*d.* This is the total amount of public endowment, and represents the income of the establishment as a burgh school. As a proprietary institution the school is in receipt of 230*l.* 6*s.* 5*d.* dividends on subscriptions invested in bank stock. These two sums constitute the whole of the public funds of the institution, as distinguished from those derived from the fees of the pupils. There are no voluntary contributions.

The total number of scholars on the roll of the academy at the date of my visit was 133 boys and 104 girls=237. The total number in actual attendance in June 1866 was stated to be about 200; taking the average attendance at about 220, this will give us the *annual public cost per head* on each child as follows:—

	£	*s.*	*d.*
Expenditure by the burgh (about) - -	- 0	7	2½
„ from the proprietors' funds (about)	- 1	0	11½
Total public expenditure per head per annum -	- 1	8	2

(*b*) *Private Cost.*

The following is an account of the system of fees and scale of payments in the two departments. The Commissioners will observe that these fees are arranged on a somewhat elaborate system. The principle of the arrangement is, however, simple, and may be thus described. There is no *compulsory* curriculum. Pupils may attend what classes they like, and pay separately for each subject selected by them. The academy does, however, offer a curriculum both to boys and girls, and in order to encourage them to follow that curriculum, and take a complete course of study, the fees are reduced to those who do so. The boys' curriculum is divided into five stages, which I suppose may be considered to correspond more or less with the usual five years allotted to education in Scotch burgh schools, and, if completed, it embraces instruction in classics, mathematics, French, German, chemistry, English subjects, and art. The fees, it will be seen, range from 2*l.* 10*s.* to 10*l.* 10*s.* per annum, the latter being the highest charge for the most advanced pupils, and embracing instruction in all the above-mentioned subjects.

The girls' curriculum is also divided into five stages, and embraces, if completed, instruction in the usual English branches, French, German (or Italian at option), and art. The classical languages and mathematics are not included in it. Music is also an extra. The fees range from 2*l.* 10*s.* to 10*l.* 10*s.* per annum, as in the boys' school.

BOYS' DEPARTMENT.

FEES FOR THE COURSE.

To those availing themselves of the FULL COURSE of higher instruction, the Directors have resolved to open the Classes at the following rates per Quarter :—

PREPARATORY COURSE.

JUNIOR.—English Reading, Spelling, Grammar, Geography, Drill, and Religious Knowledge - - - - - 12*s.* 6*d.* per Qr.

SENIOR.—English Grammar and Etymology, Reading, Spelling, Dictation, Elementary Composition, History, Geography, Writing, Arithmetic, and Religious Knowledge - - - - Fee, 1*l.* 1*s.* per Qr.

JUNIOR COURSE,

Entitling to attendance on the Classes for English Grammar, Composition, Etymology, Dictation, History, Geography, Elocution, Latin or French, Writing, Arithmetic, Drill, and Religious Knowledge

Fee, 1*l* 11*s.* 6*d.* per Qr.

SENIOR COURSE,

Entitling to attendance on the Classes for English Literature, Grammar and Composition, Modern History, Physical and Political Geography, Elocution, Senior Latin and Greek or Senior French, Drawing or Mathematics, Writing, Book-keeping, Arithmetic, Drill, and Religious Knowledge - - - - - - Fee, 2*l.* 2*s.* per Qr.

ADVANCED COURSE,

Entitling to attendance on the Classes for History of the English Language and Literature, English Composition, Ancient History, Physical and Political Geography, Theory of Arithmetic, Highest Mathematics, Use of the Globes, Astronomy, Elocution, Highest Classics, French (with Conversation), German, Chemistry or Natural Philosophy, Drawing and Painting, Drill, and Religious Knowledge - Fee, 2*l.* 12*s.* 6*d.* per Qr.

When three of a family attend, the fee of the third is reduced by one-half. No extra charges to pupils attending by the Course.

FEES PER QUARTER FOR SELECTED CLASSES.

1. English Reading - - - - -	7*s.* 6*d.*
With Grammar, History, and Geography - -	10*s.* 6*d.*
With Analysis and Composition - - -	12*s.* 6*d.*
2. Writing - - - - - -	5*s.* 0*d.*
3. Arithmetic - - - - - -	7*s.* 6*d.*
4. Book-keeping - - - - - -	10*s.* 6*d.*
5. Classics—Junior - - - -	10*s.* 6*d.*
Senior - - - - -	12*s.* 6*d.*
Highest - - - - -	15*s.* 0*d.*
6. Mathematics—Junior - - - -	10*s.* 6*d.*
Senior - - - -	15*s.* 0*d.*
Theory of Arithmetic, when taken with Mathematics	5*s.* 0*d.*
7. French—Junior - - - - -	10*s.* 6*d.*
Senior - - - - -	12*s.* 6*d.*
With Conversation - - -	15*s.* 0*d.*
8. German—Junior - - - - -	10*s.* 6*d.*
Senior - - - - -	12*s.* 6*d.*
With Conversation - - -	15*s.* 0*d.*
9. Drawing—Junior - - - - -	10*s.* 6*d.*
Senior - - - - -	12*s.* 6*d.*
With Painting - - - -	15*s.* 0*d.*
10. Chemistry or Natural Philosophy - - -	10*s.* 6*d.*
11. Drill - - - - - - -	2*s.* 6*d.*
12. Vocal Music - - - - - -	2*s.* 6*d.*
13. Janitor, Coal Money, &c. - - - -	1*s.* 6*d.*

GIRLS' DEPARTMENT.

COURSE OF INSTRUCTION.

The Course of Instruction, with the exception of Music, for which a separate charge is made, is arranged progressively in three general divisions, as follows :—

PREPARATORY COURSE.

JUNIOR.—English Reading, Spelling, Grammar, Geography, Calisthenics, Needle-work, and Religious Knowledge - Fee, 12*s.* 6*d.* per Qr.

SENIOR.—English Grammar and Derivation, Reading, Spelling, Dictation, Elementary Composition, History, Geography, Elementary Science, Writing, Arithmetic, Calisthenics, Needle-work, and Religious Knowledge - - - - - - - Fee, 1*l.* 1*s.* per Qr.

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JUNIOR COURSE.

sh Grammar, Composition, Etymology, Dictation, History, Geography, Elocution, French (1 hour daily), Writing, Arithmetic, Calisthenics, Needle-work, and Religious Knowledge

Fee, 1*l.* 11*s.* 6*d.* per Qr.

SENIOR COURSE.

English Literature, Grammar and Composition, Modern History, Physical and Political Geography, Elocution, Senior French (1 hour daily), Writing, Arithmetic, Drawing, Calisthenics, Needle-work, and Religious Knowledge - - - - Fee, 2*l.* 2*s.* per Qr.

ADVANCED COURSE.

History of the English Language and Literature, English Composition, Ancient History, Physical and Political Geography, Use of the Globes, Astronomy, Elocution, French (with Conversation), German or Italian, Writing, Book-keeping, Arithmetic, Drawing, Painting, Calisthenics, Needle-work, and Religious Knowledge - Fee, 2*l.* 12*s.* 6*d.* per Qr.

LESSONS ON PIANOFORTE.

Juniors - - - - - - Fee, 1*l.* 1*s.* per Qr.
Seniors (two Lessons weekly from Master)—Fee, 1*l.* 11*s.* 6*d.* per Qr. to Pupils of the Institution; 2*l.* 12*s.* 6*d.* per Qr. to others — the ordinary or regular Pupils of the Institution being first accommodated.

LESSONS IN ENGLISH AND ITALIAN SINGING.

Class Singing for those attending the Course - - 7*s.* 6*d.* per Qr.
By Single Lessons do. 1*l.* 11*s.* 6*d.*
No extra charges to those attending by the Course.

SELECTED CLASSES.

Pupils whose parents prefer their prosecuting a limited number of Branches at one time, or who, from the state of their health, are unable to undertake a full Course of Study, may be entered for a selection of two Classes, on payment of a separate Fee. No Pupil can be enrolled for one Class.

	£	*s.*	*d.*	
English, Writing, and Arithmetic - -	1	1	0	per Qr.
English and French - - - -	1	7	6	,,
English and German - - - -	1	7	6	,,
English and Drawing - - - -	1	7	6	,,
English and Painting - - - -	1	10	0	,,
French, Drawing, and Painting - -	1	12	6	,,
Janitor, Coal Money, &c. - - -	0	1	6	,,

These courses appear to me to be upon the whole judiciously arranged. It is a great advantage that Latin and Greek are not suggested in the boys' preparatory course. Suppose a boy to come to the academy at ten years old, to stay until the age of 16, to spend one year in each of the first four courses, and two years in the fifth, he would begin Latin towards the close of his 12th year, and Greek towards the close of his 13th year. This I believe to be the right system, and the one which should be publicly maintained. If, however, any parent should prefer to have his son taught Latin and Greek earlier, the option rests with him by payment of the special fee. The only doubt I feel is whether it would not be judicious to offer French or German in the first and second year's courses.

The girls' curriculum appears to me to be open to the grave objection that neither Latin nor mathematics are included in it. These are just the subjects which girls' education in the present day most requires, and which parents are most apt to shirk; and I think, without using any compulsion, a public institution ought to uphold the expediency of instruction in these subjects. Music is most judiciously made an extra.

There is no fear of any pupil being deterred from taking this subject, as it is considered an "accomplishment."

The learning of music on the part of boys requires public encouragement, but not on the part of girls. The real truth being that hundreds of girls devote a large amount of time to this subject who will never play or sing endurably, so as to interest themselves and not to torture others, that a large number of them will never touch the piano or sing a note after they are married, and that they might have better employed their time in cultivating their intelligence and understanding.

It thus appears that the private cost of the education of a boy or girl at this school, supposing the parent to be content to follow the course laid down by the directors, is as follows, for the several ages of 10, 12, 14, and 16.

	£	s.	d.	
A. 10 years old	2	10	0	per annum.
B. 12 „ „	6	6	0	„ „
C. 14 „ „	8	8	0	„ „
D. 16 „ „	10	10	0	„ „

with the addition of from four to six guineas per annum in the case of those learning music. So that the total cost of the education of four such boys or girls, exclusively of instruction in music, would be—

	A.			B.			C.			D.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Public (*a*) Endowment -	0	7	2⅓	0	7	2½	0	7	2½	0	7	2½
Public (*b*) Proprietary ..	1	0	11½	1	0	11½	1	0	11½	1	0	11½
Private, by fees - -	2	10	0	6	6	0	8	8	0	10	10	0
Total - -	3	18	2	7	14	2	9	16	2	11	18	2

How very successful this system of offering but not forcing a curriculum has been will be seen from the following most interesting statements. The 133 boys and 104 girls on the roll of the school in June 1866 were distributed thus :—

	Boys.	Girls.
Taking the first year's course (called "Junior Preparatory")	4	5
„ 2nd „ „	36	23
„ 3rd „ „	34	24
„ 4th „ „	31	27
„ 5th „ „	13	11
Total number on the curriculum -	118	90

Leaving only a balance of 15 boys and 14 girls taking special selected classes. Of these 15 boys, four were taking special lessons in English reading (with grammar, geography, &c.,) five in arithmetic, three in writing, one in book-keeping, two in classics, and one in mathematics. The 14 girls not in the curriculum were chiefly taking music lessons ; four of them only were taking special classes in other subjects. Of the 90 girls in the curriculum, 66 were taking lessons on the pianoforte, and 21 lessons in class singing. The commissioners will thus remark what a large proportion of the scholars are induced by the notion of a "good bargain" to put themselves through a well-chosen course of instruction ; 118 out of 133 boys in a Highland country town put themselves through a course of Latin and Greek. This is a fact worthy of the attention of trustees and masters of our deserted country grammar schools. Yet these

are the sons of a genuinely "middle class" population, as will appear from the following :—

II.—Grade of Scholars.

(*a*) *Social Position and Occupation of their Parents.*

The boys and girls on the roll at the date of my visit were, as I was informed by the secretary, divided among the following social classes :—

		Boys.	Girls.
Children of	(1) Landed Proprietors - - -	0	0
,,	(2) Professional Men - - -	24	17
,,	(3) Merchants, or Wholesale Producers -	8	8
,,	(4) Large Farmers, Superior Employés, Secretaries, Managers, &c. - -	42	22
,,	(5) Second-class Merchants, Superior Retail Traders, the larger Shopkeepers, &c. -	28	28
,,	(6) Inferior Retail Traders, and Inferior Employés, Small Shopkeepers, Clerks, Warehousemen, &c. - - -	24	28
,,	(7) Artisans, Labourers, and others of a parallel social grade - - -	7	1
	Total -	133	104

The following table will also, I think, be of interest, as illustrating this question. It gives the occupation of the parent, age at admission, and locality of residence of the last ten boys and last ten girls admitted on the roll in June 1866.

No.	Occupation of Parent.	Age at Admission.	Residence.
		Boys.	
1	Clergyman - -	13 years.	Eight miles. Comes in by rail daily.
2	Innkeeper - -	12 ,,	Distant. Lodges in town.
3	Excise Officer -	12 ,,	18 miles. Comes in by rail daily.
4	Clergyman - -	12 ,,	In town.
5	Colonel - -	15 ,,	One mile.
6	Physician - -	16 ,,	In town.
7	Solicitor - -	7 ,,	Ditto.
8	Master Plumber -	9 ,,	Ditto.
9	Ditto (brother) -	7 ,,	Ditto.
10	Merchant - -	14 ,,	Ditto.
		Girls.	
1	Colonel - -	13 ,,	One mile.
2	Ditto (sister) -	12 ,,	Ditto.
3	Road Surveyor -	14 ,,	In town.
4	Innkeeper - -	11 ,,	Ditto.
5	Confectioner -	15 ,,	Ditto.
6	Clergyman - -	14 ,,	Ditto.
7	Clothier - -	14 ,,	Ditto.
8	Innkeeper - -	14 ,,	Distant. Lodges in town.
9	Banker - -	7 ,,	In town.
10	Farmer - -	18 ,,	Ditto.

(*b*) *Age to which the Scholars continue in School.*

The following table gives the occupation of the parents of the last 10 boys removed from the roll in June 1866, the age at which they left school, and the length of time they stayed in the school.

No.	Occupation of Parent.	Age at Removal.	Time in School.
1	Farmer	16 years.	One year.
2	Spirit merchant	9 ,,	Eight months.
3	Ditto	7 ,,	Ditto.
4	Clerk	14 ,,	Six years.
5	Farmer	16 ,,	10 months.
6	Ditto	12 ,,	Ditto.
7	Ditto	17 ,,	Four years.
8	Ditto	15 ,,	Ditto.
9	Solicitor	13 ,,	Eight months.
10	Overseer	15 ,,	Ditto.

It appears from this table, and from other information furnished to me, that the boys, as is inevitable in the case of a day school, leave at all ages; their continuance at the school depending on the continuance of the parents' residence in the locality. But in the case of boys who fulfil their school life here, they commonly leave at about the age of 15 or 16, though some stay until 17 or 18. The school is therefore, in respect of the age of the scholars, mainly a school of the second grade; though it has also scholars whose age entitle it to be placed in the first grade.

I regret that as no registration has been kept of the age at which the girls leave school, I can give no information on this subject. I may, however, state that I found, when examining the first 21 girls in their department, that their average age was 15 years 4 months (ranging between 13 and 18 years), and that they had been on an average three years four months in the school (some having been as much as six and seven years in attendance).

III.—Character of the Buildings.

The buildings of the academy consist of two separate blocks, which are close together, but have no communication with one another. One of these blocks is old, the other new. The old building, having been lately restored and repaired, is now devoted exclusively to the boys. It is not well designed, and therefore only moderately convenient; but it is in good repair, has some fair and some good class rooms, and is well supplied with furniture and apparatus. There is a good playground for the boys—which, however, was much in want of gravel—and there are offices, well flushed with water; but there is no grass playground and no fives courts or other place for games.

The new building, which was only opened in 1866, is devoted to the girls. It is adjacent to that of the boys, and is fairly well planned and commodious. It also is well supplied with requisite furniture and apparatus. Both buildings are solely designed for day schools.

IV.—The Quality of the Teachers.

(*a*) *Educational Status.*

There has been a change of rector since my visit to this institution. I shall, however, speak of the staff as I found it.

The classical work of the school is taken by the rector, who has, I believe, no degree, but had some experience as master of a private school near Edinburgh, assisted by a graduate of the University of Aberdeen. The mathematical work is taken by a graduate (in honours) of the University of Edinburgh. He also takes the arithmetic and chemistry in the boys' department. The English in both departments is taken by a graduate (in honours) of Edinburgh. The arithmetic in the girls' department is taken by the English assistant master; the French is taken by a Frenchman, bachelier ès lettres, Paris; the German and music are taken by a German; and the art school is taught by a trained master from the Government School of Design. The lady superintendent of the girls' department had six years' experience as principal of a large private girls' school in Edinburgh, and she is assisted by competent governesses. As regards experience, the staff is as well qualified as men and women without special training can be, and most of the masters have a degree which testifies to their intellectual fitness. The only master who was on the staff before the rector was appointed, and the changes made by the regulations of 1863 were effected, is the mathematical master.

(*b*) *Teaching.*

The directors and the rector were good enough to permit me to listen to the teaching in each class, that of the rector himself included. I cannot say that I was favourably impressed with the result, as a whole. The teaching, as a whole, though there were one or two exceptions, which I shall presently mention, appeared to be characterised by much less energy, vigour, and skill than I had generally observed in Scotland. The amount of work got through in a session appeared to me to be too small, in some classes at any rate. The teaching of the juniors in English was moderate, and so also was some of the classical teaching. In one of the classical classes I thought the method particularly defective. The boys were hardly ever questioned orally, but wrote all their answers on slates or paper. This is, perhaps, done to avoid the slovenliness and inaccuracy of oral work, but there may be as much slovenliness and inaccuracy in written as in oral work, if proper care be not taken, and with even worse effects. The class of which I am speaking appeared to be required to learn a little, and that almost by rote, and when it was examined, even within the range of this work, some very singular blunders were made by the boys, conveying the impression that they did not understand what they were doing, but had got the whole thing up for show. This impression of a want of sound, solid, hard work may have been a false one, but it forced itself most unpleasantly upon me several times during my visit to the boys' department. The teacher of arithmetic to the girls was ill, and absent, but they did not show signs of very successful instruction. Could not the boys' teacher spare them some time? Drawing is not very well taught, though the classes are conducted by a teacher who is well trained and quite knows his business. But he, like almost all teachers in Scotch burgh schools, considers himself unable to persist in a sound course of instruction, and I found pupils copying landscapes and other elaborate drawings from the flat who had no knowledge of the rudiments of the art.

On the whole, though I observed some good individual teaching here, yet the general result seemed by no means successful, and shook my faith in the merits of school management by a supreme head master. When I compared the control and government of this school with that exercised by such a head master as the late head master of the City of London

School, I saw that such a system was either not suited to the Scotch character, or had been tried under unfavourable conditions at Inverness.

I must, however, notice as particularly good the teaching of mathematics in the boys' school, and that of music in the girls' department. The instruction in mathematics and arithmetic seemed to me decidedly the best teaching that I saw in the boys' school, and the results of my examination fully bore out this view. The especial merit of the musical instruction was the thoroughness and energy of the teaching. The girls were well taught in harmony, and showed a sound elementary acquaintance with the grammar of music. And as regards their playing, the energy and force of will possessed by the master had produced a most rare and happy result, one which I seldom found attained even in the best English girls' schools, viz., that the girls almost all took up good classical music, instead of showy and trashy pieces. A considerable quantity of Mozart and Beethoven was played to me in good time and very correctly. This is as much as one can expect from young girls. The development of taste and individuality of interpretation is a matter of maturer age, or of genius. I have never seen more satisfactory results of musical instruction than at Inverness Academy.

V.—Effects of the Teaching.

(*a*) The results of the brief examination which I was able to make of the boys' school confirmed the views I had derived from my observation of the teaching. The standard of classics was evidently inferior to that of Aberdeen, and of some of our better country grammar schools, though superior to the average of country or even London grammar schools of the second grade. The standard of mathematics was decidedly higher than that of Aberdeen, and than that of almost any country grammar school which I have inspected in England. The highest classical class and the classes in arithmetic and geometry showed a sound knowledge of what they had been taught, and did their work in a very intelligent manner.

I found the girls exceedingly backward in arithmetic. The two highest classes, called first and second seniors, had no knowledge of practice, or proportion, or decimal fractions, and had only just begun vulgar fractions. Yet the average age of these 13 girls was more than $14\frac{1}{2}$ years, and they had been in the academy on an average $3\frac{1}{2}$ years. Two of them had been pupils seven years. I was therefore unable to put before them even the preliminary arithmetic papers I.—IV., but I gave them questions 1, 3, 5, and 6 in paper II., allowing them one hour for the work. No one was able to work question 3, and as these were the senior pupils in arithmetic, I am perhaps justified in saying that that problem was beyond the powers of any girl in Inverness Academy. Possibly, however, some who were not studying arithmetic could have done it. The following table shows the result of the work which was done. The numbers are taken at random, and cannot, therefore, point to individual pupils:—

No.	Age.	Time in School.	Sums right.	Remarks on Working.
1	14	2 years.	0	Quite ignorant of notation. Two items in the bill worked incorrectly, and the summing of it wrong.
2	15	1 „	2	Very fair work. The bill wrong.
3	15	3 „	2	Very fair work. The bill worked correctly, but incorrectly added.

No.	Age.	Time in School.	Sums right.	Remarks on Working.
4	17	5 years.	0	Quite ignorant of notation. Two items in the bill wrong, and also incorrectly added up.
5	15	7 „	0	Quite ignorant of notation. Two items incorrect in the bill, &c.
6	14	4 „	1	Ignorant of notation.
7	16	3 „	0	Quite ignorant of notation. Three items wrong, and bill not summed up at all. Addition of fractions not known.
8	12	4 „	0	Ignorant of notation. Three items in the bill and the summing of it wrong. Fractions not attempted.
9*	14	7 „	3	Sound and good as far as it goes.
10	16	4½ „	3	Same remark.
11*	14	2½ „	2	Ignorant of notation. Other work sound as far as it goes.
12*	15	2 „	3	Sound and good as far as it goes.
13	13	1 „	2	One mistake in the bill. Otherwise satisfactory, as far as it goes.

No description that I could give would convey so good an idea of the great deficiency of these girls in arithmetic as is given by the above table ; and if the Commissioners will be good enough to look at Preliminary Paper II., printed in the Appendix, they will see what kind of work these girls of from 12 to 17 years old were unable to do. If I had not already seen in London equally bad or worse results I should have been quite astonished. Those girls whose numbers are marked with an asterisk * passed the Edinburgh local examination at the sitting previous to my visit. They were certainly three of the best.

The senior English classes seemed to me to be creditably taught. They were preparing for the Edinburgh local examination, for which they had to get up certain chapters of Spalding's work on English literature. Is this a good plan ? Would it not be better to name certain standard works, such as a play of Shakespeare, and to require them to learn part of the original by heart and make the most they can of the text ? This class analysed a few lines of Cowley for me very fairly ; decidedly better than analysis was generally done for me in London schools ; still the work was very far from being so complete as it might be. It was sound as far as it went, but imperfect ; it wanted fulness, and to a certain degree also, exactness.

In French the girls reach a very fair standard as regards reading and translation from French into English ; and a fair one as regards translation from easy English into French. My plan was here, as elsewhere, to give a short piece translated into English from an easy French narrative to be retranslated into French. On this occasion I gave them Paper XIX. question 1, substituting for the remainder of the paper an oral examination in grammar. The 13 girls composing the senior

French class undertook this with fair results on the whole. The following table shows these results: the maximum for the exercise was 40.

No.	Age.	Time in School.	Marks.	Remarks.
1*	14	7 years.	36	Very good work. Only two comparatively slight mistakes.
2	16	4½ „	18	Pretty fair.
3**	14	2½ „	5	Very inferior, "le sol que mon voisin avait cédeé à moi," &c.
4*	15	2 „	18	Pretty fair.
5	13	1 „	30	Good work. No serious error.
6	17	3 „	32	Very creditable work.
7	16	5 months.	35	Very good work. One bad mistake in the use of a past participle.
8	18	2½ years.	20	Fair work.
9	16	3 „	12	Very defective; but free from gross grammatical errors.
10**	16	6 „	5	Very inferior, "il un eut aussi qu'etaite loin de sa chez." (He had also one which was far from his house.) Gross grammatical errors.
11**	18	3 „	5	Very inferior, "la terre que mon voisin avec moi a faite l'êchange," &c.
12	16	2½ „	8	Very inferior, "le terre qui mon voisin à m' a donné," &c.
13	15	3 „	10	Very inferior.

Those marked with a single asterisk passed the junior Edinburgh examination in 1865, those with a double asterisk the senior. The French master had only been a short time in charge of these girls, and his work with them was promising.

On the whole these girls are better taught in music and grammar than most English girls' schools which I saw. As regards arithmetic, there is not much to choose between them and the best girls' schools in London. It must, however, be observed that these Inverness girls are taught no Latin or mathematics; and in this respect they are inferior to several Scotch schools which I visited and to the best of our London schools.

The whole institution did not seem to me among the most vigorous which I saw in Scotland.

(*b*) The order was good in all the classes, and elsewhere. The classes are all of an easily manageable size, it being, as I understood, an established rule that no class should exceed about 30 in numbers; and only one class is in the same room at once. Hence the work can be, and is, conducted in a quiet orderly way, and without unnecessarily tasking the energies of the masters.

APPENDIX VII.

i. Dumfries Academy. Pages 157–163.
ii. Perth Academy and Grammar School. Pages 163–169.
iii. Stirling High School. Pages 169–174.

i. DUMFRIES ACADEMY.

The academy of Dumfries is a remodelled burgh school. It is under the government of the magistrates and town council of Dumfries, and has four departments, viz., 1. Classics, combined with modern languages (French and German), taught by the rector and an assistant (student in arts, of Edinburgh University;) 2. Mathematics; 3. English; 4. Writing and drawing; each of the three latter departments being taught and conducted by a master subordinate in official status to the rector, and yet practically quite independent of him. The rector and three masters are appointed by the town council, but they nominate their own assistants, subject to the approval of that body. The masters are quite independent of each other, and of the rector, and they have not even, as at Glasgow High School, any means of common action.

There is no general prospectus or programme of the school work, nor is there any general roll or complete system of registration; the following, necessarily imperfect details, were consequently gathered from the rector and several masters with some difficulty and trouble, and I beg to thank those gentlemen for their kind readiness to give me information and assistance.

The following is an account of some of the work done in the school. Between Christmas and Midsummer 1866, the rector's *first* (highest) *Greek class* went through with him Herodotus II. 1–50; Euripides Alcestis; Arnold's Greek Prose Composition, 1–50; Clyde's Greek Syntax, 1–150; Acts of Apostles, chap. 16 to end. The *second Greek class* did Homer, Iliad I.; Xenophon, Anabasis, I.; Clyde (as above); Acts of Apostles (as above). The rector's *first* (highest) *Latin class* went through Horace, Odes I.; Livy, xxi., 1–36; Arnold's Latin Prose Composition (revised); Melvin's ditto (revised). The *second Latin class* did Sallust, Catilina, Virgil, Æneid II. The rector's *first* (highest) *French class* went through Racine's Athalie; Lamartine's Colomb; De Porquet's Trésor. The *second French class* went through Henry's Histoire de France (last 150 pages). During the same period the *first* (highest) *Mathematical class* professed the theory of Arithmetic, Logarithmic Arithmetic, six books of Euclid (with deducibles), Colenso's Algebra. The *second class* professed the theory of Arithmetic (in part), two books of Euclid, Algebra to Simple Equations.

No curriculum is enforced, or even authoritatively suggested. The total number of boys and girls (for both sexes are admitted to the school) at the date of my visit was 300.

At the date of my visit—

The number of boys learning	Greek	was	-	16
„ „ girls „	„	-	-	0
„ „ boys „	Latin	-	-	68
„ „ girls „	„	-	-	0
„ „ boys „	Arithmetic		-	110
„ „ girls „	„		-	70
„ „ boys „	Mathemetics		-	43
„ „ girls „	„		-	1
„ „ boys „	Writing	-	-	110
„ „ girls „	„	-	-	70
„ „ boys „	Drawing	-	-	20
„ „ girls „	„	-	-	20
„ „ boys „	French	-	-	18
„ „ girls „	„	-	-	18
„ „ boys „	German	-	-	2
„ „ girls „	„	-	-	3
„ „ boys „	English	-	-	150
„ „ girls „	„	-	-	100

The school charges are as follows :—

	s.	*d.*	
Latin - - -	7	6	per quarter.
Do. with Greek - -	10	0	„
French - - -	7	6	„
German - - -	7	6	„
French and German -	12	6	„
English - - -	5	0	„
Arithmetic - -	5	0	„
Mathematics - -	10	0	„
Writing - - -	5	0	„
Drawing - - -	5	0	„
Writing and Drawing -	7	6	„

Besides which each pupil pays 1*s.* to each master as coal money.

The school is endowed with 3,000*l.*, left by Dr. Crichton, the interest of which (according to an arrangement concluded for five years) is divided among the teachers as follows (income tax being deducted) :— Rector, 25*l.* ; assistant, 50*l.* ; English master, 15*l.* ; writing master, 15*l.* ; mathematical master, 15*l.* ; total, 120*l.* The rest of the expenses of the school are provided for by the fees of the pupils and the grants of the town council in the following way. Besides their salaries from Dr. Crichton's endowment, the masters also receive salaries granted by the town council, as follows :— Rector, 64*l.* per annum ; English master, 30*l.* ; writing and drawing master, 25*l.* ; mathematical master, 25*l.* ; total, 144*l.* They also receive the fees of their respective pupils. The janitrix receives from the masters 6*l.*, and from the town council the use of a cottage valued at 8*l.* per annum ; total, 14*l.* *The repairs of the buildings are kept up by the council, but the taxes are paid by the masters on their respective class-rooms.* Prizes of the value of 10*l.* are granted annually by the town council, and from voluntary contributions 10*l.* are also received for the same purpose. Three bursaries of the value of 18*l.*, 15*l.*, and 12*l.* are given from the same source. *Apparatus* of the value of 80*l.* had been supplied to the school shortly before my visit, by private subscription. But the main dependence of the school is on the fees of the pupils. The buildings of the school are sound and substantial, and stand in a satisfactory situation. But there are some defects in the premises. The playground is not level, and neither good grass nor good gravel. The offices are in a very objectionable situation, and are not well designed, arranged, or drained.

The 300 pupils on the roll of the school at the date of my visit were divided among the following social classes in the following proportions:—

1.	Children of landed proprietors - - - -	6
2.	,, professional men - - - -	30
3.	,, merchants or wholesale producers - -	30
4.	,, large farmers, or superior employés, *e.g.*, secretaries, managers, overseers &c. - - -	60
5.	,, second class merchants, superior retail traders, large shopkeepers, &c. - - -	150
6.	,, inferior retail traders, and inferior employés, *e.g.*, clerks, warehousemen, &c. - - -	15
7.	,, artisans, labourers, and others of a parallel social grade - - - - - -	9
	Total - -	300

It will thus be seen that, of all the scholars, 50 per cent. (or one-half) are children of persons in the position of substantial shopkeepers; 20 per cent., or one-fifth, of persons in the position of inferior employés, and 20 per cent., another fifth, of persons in professions and the higher branches of trade. *The school is a thoroughly middle class school; and yet there is a very great mixture of social classes.*

I could not obtain any thorough information regarding the ages at which children are admitted, the length of time they stay in the school, or the distance of their residence from the school. The holidays consist of six weeks in summer, and 10 days at Christmas.

One of the noteworthy features of this school is the teaching of classics and modern languages by the same teacher—viz. the rector. This is done in order to give the rector a reasonable income. Were he to teach classics only, his income, being chiefly derived from fees of pupils, would be very trifling. A more popular subject (modern languages) is therefore assigned to him along with the classics. As it is, the rector's income is considerably smaller than those of some of his colleagues, *e.g.* the income of the English master is much larger. The rector is an Englishman, a graduate in arts of Edinburgh University. He is evidently a good scholar both in classics and modern languages, and capable of teaching a middle school well.

The *Latin course* is calculated for five years, but not many boys go through it. Classics are not much in request in Dumfries; I only found six boys in the fifth year. I examined the fifth year in Horace and Livy, and the fourth in Virgil, with fair results. The boys did not seem to me so bright and intelligent, on the whole, as in some other burgh schools. The fifth year pupils could not attempt the prose on Paper XXI.; and generally "versions" were not so well done here as in some other burgh schools.

The *Greek course* is calculated for three years, but very few, even of the few who learn Greek in this school, take it so long. Greek is intended, in theory, to begin at the third Latin year; but there is no strict practice in this respect, and the subject is begun as often in the fourth as in the third Latin year, and sometimes in the second. The Greek pupils of the first year had gone through Dr. Bryce's book, and answered in it very well. This is very good work for the first year in Greek. Those in the second and third years did not do so well, comparatively, as those in the first year.

Classics are not the strong point of this school. Those who choose

to learn the subject, and apply themselves to it, can receive a sound and valuable classical grounding. Some boys from the classical department of the school have done remarkably well lately at Edinburgh University, and one, passing through Glasgow, has lately obtained, by competition, a valuable exhibition to Oxford. But, on the whole, the classical department is weak, and wants more encouragement than it receives. It would be a great improvement if a regular curriculum were suggested, and recommended to parents, as at Inverness Academy, by the reduction of fees to all who choose to follow it.

German and *French* are taught by the rector. The number of pupils learning was not large, but they had been well taught. The highest French class, consisting of one boy and two girls, did the translation on Paper XIX., Question 1. for me. They had been learning French, on an average, $3\frac{1}{3}$ years, and were aged, on an average, $15\frac{2}{3}$ years. They obtained an average of 31 marks out of 40 for the translation, which was a very good result. All the French classes that I examined appeared to be well grounded. They were taught grammatically, and their pronunciation was up to a fair standard.

The course in the mathematical department is arranged according to the following system. It is intended to last at least five years, and, if possible, six; and the geometry and algebra are intended to commence in the fourth year.

First year	Arithmetic	- (Simple Rules).
Second „	Do.	- (Compound Rules, with Practice and Proportion).
Third „	Do.	- (Vulgar and Decimal Fractions, Extraction of Roots, &c.).
Fourth „	Do.	- with more completeness. Two books of Euclid, and Algebra to Simple Equations.
Fifth „	Theory of Arithmetic; theory and practice of Logarithms; six books of Euclid; Algebra, to end Colenso (1st. part).	
Sixth „	Trigonometry and Analytical Geometry, with elementary notions of the Calculus.	

Very few pupils enter the sixth year. At the time of my visit there were only two in that work. Thus very few pupils had been more than two years in mathematics, because the study of those subjects does not commence until the fourth year in arithmetic. The study of arithmetic without mathematics is, it will be seen, intended to last three years. The general course may, in short, be described as a three years' course of arithmetic, followed by a two years' course of geometry and algebra, and, in exceptional cases, by another year of mathematics. I examined a large arithmetic class (the second year's), and was much struck by the excellent results obtained. I also heard the master give a lesson to a junior and to a senior class. He explained the theory of arithmetic with great lucidity, readiness of expression, and fertility of illustration. His teaching of arithmetic was remarkably good, and was one of the most impressive things I saw in my Scotch tour. I examined the fourth and fifth years in Euclid, with deductions, and algebra. One remarkable feature in the examination (oral) of the fifth year was the presence of a girl among the pupils, who stood up before the black board and answered with the rest in very creditable style. These classes answered remarkably well, showing very sound grounding combined with remarkable breadth of study and intelligence. I was quite surprised at the readiness which the upper class showed in working deductions, and in handling the propositions when changes were made in

the mode of drawing the figures or in the conditions of the hypotheses. The work was really excellent as the result of two years' teaching, and could only have been produced by first-rate teaching, based upon a good grounding in arithmetic. The master taught the higher class before me with singular vigour and intelligence. He not only taught and required in his pupils a knowledge of the text of Euclid or of Colenso, but he also supplied them with numerous variations, short methods of working, illustrations, and explanations of principles derived from a study of modern French and other works on geometry and arithmetic. The pupils follow his teaching with the greatest interest and attention, being stimulated partly by his manner and power as a teacher, and partly by their desire to obtain bursaries to the universities of Edinburgh and Glasgow. I found, for example, one lad in this department who had come from a parochial school in the country, and had only been seven months at this school. He was very poor, and was only entered to the mathematical department. He was about 16 years old, and his object was to obtain a bursary at the next competitive examination. He was much behind the other boys in the higher fifth-year class in all respects, but in these seven months he had gone through six books of Euclid, with many deductions, and was going carefully over the three first books for the second time. He had a very fair notion of Books IV.–VI., though not yet quite sound. Paper X. was worked for me very creditably by some of the fifth year's class.

The work of this department is extremely good.

I examined the English classes in dictation, reading, history, geography, and grammar, and was well satisfied with the results, which showed accurate and intelligent teaching. The classes are, however, rather too large.

Drawing is taught from the flat, and with that want of real scientific method which is almost universal in schools.

On the whole there is a good deal of good work done in this school. With a better organization, and greater interest on the part of the patrons, the school might, perhaps, be raised to a higher degree of efficiency; but there is, in all the departments, a good amount of sound work, and in some, such as the mathematical, really striking results are obtained. There is plently of life and emulation among the scholars, especially in the mathematical and English departments, and some of them get through a remarkable amount of work. The following statement of a week's work, done at home by a boy of twelve years of age in this school, was furnished to me by him in his own handwriting, at my request, and will, I think, prove interesting. He remarks upon it,—"As it is drawing near to our examination we are going over "most of the books for the second time. In consequence the quantity "of work is greater, but the time to prepare it less, than usual."

Lessons prepared for Monday July 2nd.

Latin.—Fourth Class.—In (Arnold's) Latin Prose Composition—to turn into Latin, and take, written exercise 33; time, 35 minutes. In Sallust, the War of Catiline—translate chapter 34, and five lines in chapter 35; time, 30 minutes; parsing, 15 minutes.

German.—First Class.—In (Tiark's) Introductory Grammar—turn into German and take written first exercise, page 169, on prepositions and the cases they govern; time, 40 minutes. In (Grimm's) Kinder and Hausmärchen—Tom Thumb's travels—translate page 138 and half of 139; time, 20 minutes; parsing 10 minutes.

French.—Second Class.—In (Surenne's) New Pronouncing French Primer, containing a vocabulary and a selection of phrases. In vocabulary learn words contained under name "of agriculture;" time, 10 minutes. Learn phrases

contained under two headings, " to affirm " " to deny ;" time, 15 minutes. In (Fleury's) Histoire de France. The reign of Louis XVII. Translate from middle of page 331 to middle of page 332; time, 15 minutes; parsing, 10 minutes.

MATHEMATICS.—First Class.—In (Thompson's) Euclid, learn first 10 propositions, 3rd book; time, 20 minutes.

Lessons prepared for Tuesday, July 3rd.

LATIN.—Fourth Class.—In (Arnold's) First Verse Book—to be taken written first eight lines of exercise 31, hexameter and Pentameter alternately; time, 25 minutes. From two English sentences given by the rector, to form sense verses, hexameter and pentameter; time, 15 minutes. In Virgil, Book II. of Æneid—translate from verse 712 to verse 740; time, 45 minutes; parsing, 20 minutes. In (Arnold's) Latin Prose Composition—exercises 16–17, and 17 revising; time, 15 minutes.

GERMAN.—First Class.—In (Grimm's) Kinder and Hausmärchen—Tom Thumb's travels—translate the remaining half of page 139 to near foot of page 140; time, 25 minutes; parsing, 10 minutes.

FRENCH.—Second Class.—In (Surenne's) Primer—learn those words contained in the vocabulary under the name " of flowers ;" time, eight minutes. Learn phrases under headings " astonishment," " probability ;" time, 12 minutes. In (Fleury's) Histoire de France—finish chapter on Louis XVII. and half of first page on Republic; time, 15 minutes; parsing, 10 minutes.

MATHEMATICS.—First Class.—Learn from 10th to 20th proposition; time, 20 minutes.

Lessons prepared for Wednesday, July 4th.

LATIN.—Fourth Class.—(In Pillans') First Steps to Classical Geography, on Italia—learn pages 19, 20, 21, revising; time, 30 minutes. In Sallust, the War of Catiline—translate from fifth line in chapter 35, till end of 36 chapter; time, 30 minutes; parsing, 15 minutes.

GERMAN.—First Class.—In (Grimm's) Kinder and Hausmärchen—Tom Thumb's travels—translate from near foot of page 140 to top of page 142; time, 25 minutes: parsing, 15 minutes.

FRENCH.—Second Class.—In (Surenne's) Primer—learn words contained in vocabulary under the name " of fruits ;" time, five minutes. Learn phrases under two headings, " pleasure," " sorrow ;" time, 20 minutes. In (Fleury's) Histoire de France—translate remaining half of first page on Republic, and half next page; time, 15 minutes; parsing, 10 minutes.

MATHEMATICS.—First Class.—In (Thompson's) Euclid—learn from 20th till 30th proposition, third book; time, 20 minutes.

Lessons prepared for Thursday, July 5th.

LATIN.—Fourth Class.—In (Arnold's) Latin Prose Composition—learn exercises 18, 19, 20, revising; time, 20 minutes. In (Arnold's) First Verse Book—remaining four lines of exercise 31, and four lines of exercise 32, hexameter and pentameter alternately; time, 25 minutes. From two English sentences given by the rector, form sense verses, hexameter and pentameter; time, 20 minutes. In Virgil, Book II. of the Æneid, translate from line 740 to verse 768; time, 35 minutes; parsing, 15 minutes.

GERMAN.—First Class.—In (Grimm's) Kinder and Hausmärchen—translate from top 142 finish story, one page and a half; time, 25 minutes; parsing, 15 minutes.

FRENCH.—Second Class.—In (Surenne's) Primer—learn words contained in vocabulary under heading " of vegetables ;" time, five minutes. Phrases under two headings, " hope," " despair ; " time, 15 minutes. In (Fleury's) Histoire de France, half page 334, and quarter of page 335; time, 15 minutes; parsing 10 minutes.

MATHEMATICS.—First Class.—Finish book third, revising; time, 20 minutes.

Lessons prepared for Friday, July 6th.

LATIN.—Fourth Class.—In Sallust—the War of Catiline, 37th chapter; time, 25 minutes; parsing, 15 minutes. In Grammatical Exercises—revising with third class, their week's work; time (to look over it), 20 minutes.

GERMAN.—First Class.—In (Grimm's) Kinder and Hausmärchen—revise all the week's work, Tom Thumb's Travels; time (look over), 15 minutes.

FRENCH.—Second Class.—In (Surenne's) Primer—learn words contained in vocabulary under heading "of wild plants;" time, 10 minutes. Learn phrases under the two headings, "sympathy," "antipathy;" time, 15 minutes. In (Fleury's) Histoire of France—translate remainder of page 335; time, 15 minutes; parsing, 10 minutes.

MATHEMATICS.—First Class.—Look over third book of Euclid; time, 30 minutes.

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ii. PERTH ACADEMY AND GRAMMAR SCHOOL.

This institution has been gradually developed into its present shape out of the foundation of an ancient grammar school, the celebrity of which can be traced back to the period of the Reformation; and the evidences of this gradual development still exist in the constitution and title of the school. Its full title is the "Academy and Grammar School of Perth." The grammar school is the original nucleus of the modern institution, and formerly constituted the whole establishment; and the Academy is a modern graft upon that ancient stock.

There has been no fusion of the ancient grammar school with the academy, but only an addition of new departments to the old grammar school. The principal teacher of the grammar school is still styled "Rector of the Grammar School," and the principal teacher of the mathematical, which is the most important among the other and more modern departments, is styled "Rector of the Academy." But these titles do not imply anything more than a certain dignity of position. All the principal teachers of departments in this institution are entirely independent of one another. The rector of the academy has no more control over the writing or drawing master (for example) than he has over the rector of the grammar school. The following prospectus, which was the most recent that I could obtain, shows the number and nature of the departments, and the names of the teachers, at the time of my visit. It is extracted from the "Perth Advertiser" of August 30, 1855:—

PERTH ACADEMY.—The course of education taught in this institution prepares young gentlemen for the University, for entering the army or navy, for becoming civil engineers, or engaging in commercial pursuits; and consists of the following branches of study:—

By THOMAS MILLER, A.M., LL.D., F.R.S., Rector, and Assistant.

Junior Classes.—Algebra, Geometry, Plain Trigonometry, &c.; Arithmetic in Theory and Practice, Book-keeping, Geography, and Practical Mathematics.

Senior Classes.—The higher Mathematics, Natural Philosophy and Chemistry; the higher branches of Arithmetic; Book-keeping in all its varieties, Mathematical Geography, Navigation, and Fortification.

Grammar School by Mr. William Dunbar Steele, Rector of the Grammar School. Latin, Greek, Geography, and Greek and Roman Antiquities.

Department of Modern Languages, by Mr. H. Schaefer. French, German, Italian, and Spanish.

Drawing Department, by Mr. W. Brown. Drawing and Painting.

Writing Department, by Mr. J. Smith, A.M., and Assistants. Writing and Practical Arithmetic.

English Department, by Mr. A. B. Smith, and Assistants. English, English Grammar, and Geography.

The Lord Provost and magistrates hereby give notice, that the various classes in the Perth Academy (with the exception of those taught by Mr. Miller and assistant) will be reopened on Monday, the 3rd of September next. The classes taught by Mr. Miller and assistant, will be reopened on Monday, the 24th of September.

Perth, 28th August 1855.

"The Town Council," says a trustworthy correspondent, "the patrons, "have ceased to advertise the re-opening of the classes for some years "past, and, indeed, seem now to take no interest in the promotion of "education. They recently permitted the Rector of the Grammar "School to be prosecuted for poor-rates for his class-rooms; and "although Sheriff Barclay decided that he was not the party liable, "not being the real occupier in the sense of the statute, the magistrates "being the proper parties, as they fix the hours of teaching, fees, "subjects, holidays, examinations, &c. This, indeed, decided the case "for all the masters, and should have been satisfactory to patrons as "well as to the managing committee of the Parochial Board, of which the "magistrates and Town Council form a large proportion." He adds that, notwithstanding this decision, fortified by the concurrent opinion of one of the first counsel at the Scotch bar, an action has been raised against the Rector of the Academy for poor rates for his class-rooms; which, unless he submits to pay the tax, may be carried through all the courts of law in Scotland, and even to the House of Lords. He adds, moreover, that the magistrates themselves, who are commissioners of police, have given the teachers notice of an immediate action for police assessment; and he calls attention to the significant fact that the clerk to the magistrates is a lawyer who is not paid by a fixed salary, and that all expenses are paid from the burgh funds.

This action against the rector of the academy was subsequently decided in his favour by the Sheriff Depute, upon which the magistrates carried it by appeal before the Sheriff of the county, who again decided that the Town Council and not the masters were liable for the rates. In this decision, as I am informed, the magistrates have acquiesced.

The mathematical department, which was, apparently, the first that was added on to the old grammar school, has now become the leading and most important department. In reference to this change a very old and experienced teacher in Perth writes to me:—

"The mercantile spirit of the age has sent the classics to the wall "long ago in the provinces, and its influence it would appear has now "reached the capital. The academy is superseding the grammar "school. I find the same thing happening to the great seats of "learning in England—ancient learning giving place to what is neces- "sary and of immediate use.

"The clergy have always been conservative of the ancient and "classical; the laity have always been demanding what is modern and "useful; and the laity have carried their object much sooner in "Scotland than in England, as the constitution of her church is more "democratic than the English, her clergy in her church courts being "all on a par with each other, and the people, like all democrats, not "to be dictated to. The clergy have always claimed authority even "over the burgh schools, as they did over parochial, but the burghs "have successfully resisted them, and now a clause in our last "Parochial School Act deprives them of all power, if ever they had "any.

"I may mention, from what I know of the Scotch character, that a "rector with authority over the other masters, that is with power to "control and direct, would never work in Scotland; nor do I think "the people themselves would submit to any authority. They have "been accustomed to direct the education of their children, to select "whatever curriculum they think fit for themselves, and few families "take the same view of things. Many families are with me who are "nowhere else in the academy, and *vice versâ*. A rector in such

"circumstances can have no control. His interference would have an "injurious effect on the school generally. A great many of the people "of Scotland are Dissenters, and Dissenters are very impatient of "any control. Now, a rector with authority often interferes with the "views of the parents as well as with the interests of individual "teachers. A man cannot be a good teacher who is not thoroughly "independent, and at liberty to act for himself. At least so we in "Scotland think."

On this I will only here remark, that if an institution is to be taught by separate and independent masters, it is at least desirable that the patrons or governors should clearly define and distinguish what precise branches of study each master may teach, so as to prevent the different masters from intruding into one another's province; otherwise a considerable waste of power arises, and much jealousy is occasioned. I found that in more than one instance, here, as elsewhere, from want of proper control and organization, the same subject is being taught by more than one teacher at the same time. And I gather, from copies of the minutes of the Town Council which were shown to me, extending from the year 1800 to 1825, that the magistrates used formerly to endeavour to regulate the course of study in each department, so as to prevent this waste of power and the quarrels which ensue. The academy is, like the High School of Glasgow, a mere congeries of schools under one roof, and under the same patrons, but not otherwise connected at all. There is no curriculum enforced or recommended, and there is no systematic communication between the masters. The masters at present in office consider that they hold their masterships "ad vitam aut culpam." There are no retiring pensions. The last appointment to a mastership in this institution was made on the following terms: that *the retiring master should retain his burgh salary, 25l., and should also receive 35l. per annum from the incoming incumbent.* This was the way in which a pension was provided for the outgoing master. This arrangement continued in force eight years, at the end of which the pensioner died; thereupon the incumbent applied to the magistrates for the burgh salary of 25*l.* per annum, but they refused to pay it. This master has therefore now only the fees of his scholars. He also finds all the furniture of his class-room, and his own apparatus. The Town Council even refuses to execute necessary repairs. The Town Council of Perth, is, I am informed, *elected by a constituency within the ancient royalty of Perth*, which excludes all the suburbs, and therefore many of the more intelligent and respectable inhabitants. If they were elected by a constituency within the parliamentary burgh, a different class of persons would elect and be elected. "There is a great difference," said a resident in Perth to me, "between "the ways in which different town councils manage schools, which "difference depends greatly on the mode in which they are elected. "Dundee and Montrose are examples of more liberal management; "each of these schools has, or at all events had recently, a curri-"culum."

At the date of my visit (June 1866) there were attending the academy about 200 boys and 120 girls, total 320. But these numbers are not exact, as there is no general school roll or other adequate registration.

The pupils are admitted at any age, and come to the English and writing departments as young as six years of age. The pupils in the classes of the rector of the academy are generally between the ages of 14 and 18, as they come to that department in general to finish. I

found the following numbers of scholars in the different departments, viz. :—

Mathematical and Natural Philosophy	- Boys	—	45
" "	Girls	—	0
Latin - - - - -	Boys	—	70
" - - - - -	Girls	—	0
Greek - - - - -	Boys	—	13
" - - - - -	Girls	—	0
French - - - - -	Boys	—	29
" - - - - -	Girls	—	46
German - - - - -	Boys	—	3
" - - - - -	Girls	—	8
English - - - - -	Boys	—	133
" - - - - -	Girls	—	96
Writing and Arithmetic - -	Boys and Girls	—	220
Drawing - - - - -	Boys	—	45
"	Girls	—	40

I. The Cost of the Education.

(*a.*) *Public.*

Salaries payable from the burgh funds to the present incumbents :— Rector of academy, 100*l.* ; assistant to rector, 25*l.* ; rector of the grammar school, 50*l.* The salaries of all the other masters were formerly 25*l.*, but the teachers of English and modern languages who were last appointed now receive no salary. The patrons make their own terms with each master when he is appointed. "The patrons also," I am informed, "formerly paid all expenses of gas, apparatus, advertising, "prizes, &c., but they have declined to pay any of these for some years "past, and the masters have been compelled to do so from their already "too slender incomes." There are no bursaries attached to this school nor any other endowment, the only public expenditure on the school, with the exception of rates and taxes (if the patrons continue to pay them) is in salaries to the amount of about 225*l.* per annum.

(*b.*) *Private.*

Fees payable by the students :—

To Rector of Academy and Assistant, for a Session of 10 months,—	
For three or four hours' daily instruction - - -	£4 4 0
For two hours' ditto - - - - - -	3 3 0
For one hour's ditto - - - - - -	2 2 0

	Per Quarter.
To Rector of Grammar School,—	
For one, two, or three hours' daily instruction - -	£0 12 6
To Teacher of Modern Languages—one hour daily - -	0 16 0
To Teacher of Drawing do. - -	0 15 0
To Teacher of Writing and Arithmetic—two hours daily -	0 12 0
To Teacher of English, &c. do. -	0 7 0
And private class for Geography, Composition, &c. - -	0 12 6

Janitor's fee, coal money, books, instruments, &c., from 1*l.* to 2*l.* 10*s.*

II. Class of Scholars.

I was informed that the 320 scholars attending the academy were divided, approximately, among the following social classes, viz. :—

1. Children of landed proprietors - - - - -	10
2. " professional men - - - - -	100
3. Wholesale traders, Merchants, &c. - - - -	30
4. Large retail traders, farmers, and superior employés - -	100
5. Small retail traders, shopkeepers, and inferior employés - -	80
6. Artisans, labourers, and others of a parallel social grade - -	0
Total - - - - -	320

III. Character of the Buildings and Premises.

The present fabric was built by subscription in 1805, and cost about 6,000*l*. It is a substantial and solid building, and the situation is very picturesque. Owing to the flooding of the North Inch by the river Tay, the rooms on the basement are damp, and much inconvenience is experienced. The class-rooms are, with the exception of that of the French master, of a fair size. The building, however, is ill-kept, out of repair, and shows signs of neglect. The rector's class-room is very good, and is well supplied with furniture and apparatus for the teaching of mathematics and natural philosophy. This apparatus is supplied by the magistrates, and is the only instance of liberality on the part of the patrons of this school. The French class-room is not convenient. It is small, and there are no desks or other furniture for writing in it. The pupils have to sit on benches, and write holding the paper on books or something stiff in their hands. The drawing class-room is on the basement, and, like all the class-rooms on the basement, it is in a very unsatisfactory condition. It has a stone floor, laid upon clay, and is deficient in wainscot, skirting, and other necessaries. The occupants suffer from rheumatism, and are said to be much troubled by snails, which get upon the paper and other drawing materials. The apparatus and furniture are also very unsatisfactory. There is a want of proper stands, racks, &c. The drawing materials, casts, models, &c., belong to the master, who lamented that he had been unable to get any from the Science and Art Department at South Kensington, because the magistrates refuse to pay the required moiety of expense. The master had offered to pay that sum himself if the materials might become his private property, but to this, of course, the department would not assent. Except the mathematical rooms, all the class-rooms are deficient in apparatus. There are no blank maps, or other modern contrivance. There is no playground attached to the school; but the North Inch, close by, is available for cricket.

On the whole the shell of these buildings is satisfactory, but they require keeping in better order and repair.

IV.–V. Quality of the Teaching, and Attainments of the Scholars.

Mathematical Department.—The rector takes the Euclid, geometry, algebra, and other branches of mathematics, pure and applied. He also takes the instruction in chemistry and other branches of natural philosophy. His assistant teaches arithmetic, book-keeping, and other commercial subjects. These classes are always popular and well filled; partly on account of the desire which young men feel to enter the Military, Naval, and Indian Services, and the popularity of the profession of civil engineer, and partly on account of the high ability of the rector. He was good enough to permit me both to question his pupils and to listen to his teaching, and I was greatly impressed by his method and manner as a teacher. He examined his senior class in my presence orally in demonstrative mechanics, and I afterwards questioned them in Euclid (Paper X.) and algebra. The teacher was remarkably energetic, painstaking, simple, earnest, and efficient, and he secures an excellent average result among his pupils, while quite able to carry any that will pursue the study of mathematics into the higher branches. The senior and junior classes were both of them remarkably well grounded in Euclid. A very fair quantity of work is gone through in the course of the session, and whatever they learn the pupils seem to know and understand thoroughly.

Grammar School.—No Latin prose is done. The standard aimed at is not so high as that of Glasgow High School. I examined several of the classes in Latin, and one in Greek, but have nothing particular to remark. Classics are not now popular here as they once were. Boys in this department do not, I am told, work with the same energy, eagerness, and desire to learn and to progress as they do in the other departments. It will be observed that there are no girls attending this department.

Department of Modern Languages.—The master is a foreigner, but is thoroughly well acquainted with the English language. He taught his classes in my presence, and permitted me to examine them. I found the senior class of girls doing composition. At the close of one day's lesson the master gives the class a piece of English, which he has himself translated from a French book, to be prepared at home for translation into French; and on the next occasion of meeting him they translate it orally into French. He questions them orally in French and English, and also holds purely conversational lessons in French. He teaches remarkably well; questions rapidly, with much quiet energy, and good sense, and knows English so thoroughly well that the lesson is a really good study of translation from French into English (the point in which foreigners so often fail), as well as from English into French. The senior class of girls, 19 in number, worked for me Paper XXV., Question I. They were only allowed 20 minutes for it, and were required to do it without any books of reference. The following table shows the result of their work, which is under the circumstances very creditable to them and their teacher. The numbers do not indicate any order in the class, but only the order in which I happened to look over the papers of each girl taken at random. These papers were, on the whole, remarkably free from grammatical errors, and the composition was very fairly correct and idiomatic. Their chief fault was a defective vocabulary. It will be seen that the average age of this class was 16 years, that they had been learning French on an average rather less than four years, and that they made an average of $18\frac{2}{3}$ out of 40 marks in the short time allowed for the exercise.

No.	Age.	Number of Sessions in the French Department.	Marks, Max. 40.
1	15	3	10
2	15	4	10
3	14	4	15
4	14	4	20
5	16	3	8
6	16	4	25
7	15	5	15
8	16	4	35
9	17	5	20
10	18	4	30
11	16	4	18
12	17	6	30
13	16	5	20
14	16	4	15
15	17	4	16
16	16	2	12
17	17	3	20
18	17	3	20
19	17	2	15

The first class of boys took Paper XIX., and did it very fairly. On the whole this department appeared to me to be very well taught and conducted.

In the *English* and the *Writing Departments* there is nothing particular to notice, except that some of the subjects taught in the latter department are taught also in the classroom of the rector. Such are arithmetic and book-keeping. There is thus a certain waste of power, which is objectionable.

The *Drawing Department*, in spite of the defects in the room previously mentioned, and the want of requisite apparatus, is well taught, and produces creditable results; decidedly better than in other schools where the furniture and apparatus are superior. This is owing, in the first place, to the ability of the teacher; and in the second, to the emulation which is caused by the examinations in drawing for the civil and military services. The master lays down a regular course, through which he makes his pupils pass, and he does not neglect, as so many drawing-masters in schools do, the grammar of art.

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iii. STIRLING HIGH SCHOOL.

This school is an ancient grammar school, but it was established on its present footing in the year 1856. It consists of five departments, each under a principal teacher, viz.: 1. *English Department*, under a master and three assistants. In this department, reading, spelling, grammar, history, geography, use of the globes, and composition are taught, *to boys and girls in separate sections, but in the same classroom.* The following tables show the ages of the pupils in the different classes of this department, and the numbers of each sex in attendance at the date of my visit.

English Master, with one male Assistant and two female Assistants.

First Class (highest). Age of pupils, 13 to 16 years; engaged 5 hours a week			
Girls - - - 18	Boys - - - 10		
Second Class. Age of pupils, 12 to 15 years; engaged 5 hours a week.			
Girls - - - 16	Boys - - - 24		
Third Class. Age of pupils, 11 to 14 years; engaged 10 hours a week.			
Girls - - - 9	Boys - - - 28		
Fourth Class. Age of pupils, 10 to 12 years; engaged 10 hours a week.			
Girls - - - 18	Boys - - - 30		
Fifth Class. Age of Pupils, 9 to 11 years, engaged 10 hours a week.			
Girls - - - 10	Boys - - - 25		
Sixth Class. Age of Pupils, 8 to 10 years; engaged 10 hours a week.			
Girls - - - 7	Boys - - - 21		
Seventh Class. Age of pupils, 7 to 9 years; engaged 10 hours a week.			
Girls - - - 7	Boys - - - 10		
Initiatory Class. Age of Pupils, 6 to 8 years; engaged 10 hours a week.			
Girls - - - 1	Boys - - - 18		
Total numbers in attendance - 86			166

Except in the first (highest) class, the boys and girls are taught in the same room together, and at the same hour; but they are not classed together, but sit on different benches, the girls always arranged behind the boys. The boys and girls of the first class are taught entirely separate. The following is the time table of the first class.

I. Class.—Boys, 12–1 p.m. Girls, 2–3 p.m.

Age, 13 to 16 years.

Monday	History of British Empire (written examinations); or, sometimes, revisal of Geography. Elocution. Exercises, Essays, Paraphrase of Poetry, Letters, &c., prepared at home.
Tuesday	Geography (Political). Analysis in Parsing (orally). Grammar (Morell's). Exercises (Cornwell's Young Composer), prepared at home.
Wednesday	History of British Empire. Elocution. English Literature. Exercises (Morell's Analysis).
Thursday	Geography (Political). Analysis in Parsing (orally). Grammar (Morell's). Exercises (Young Composer), prepared at home.
Friday	Physical Geography, Problems on Maps and Globes. Exercises (Morell's Analysis and Parsing), prepared at home. Roots of Words, with their Derivatives. Spelling from Dictation.

The course is arranged for 10 years' study. The pupils are expected to remain a year in each class, and are all promoted together at the end of the year. The fee for each class is 5*s.* per quarter.

2. *Commercial and Mathematical Department*, under a master and assistant. In this department, writing, book-keeping, arithmetic, practical mathematics, Euclid, natural philosophy, and phonography are taught. The fees are,—

			s.	*d.*	
Writing and Arithmetic,	1 or 2	hours daily -	3	6	per Quarter.
Ditto ditto	3 or 4	„ -	5	0	
Book-keeping	1 or 2	„ -	7	6	
Mathematics	„	„ -	7	6	

Natural Philosophy or Phonography, 5*s.* per session. Pens and ink 6*d.* additional per quarter.

3. *Classical Department*, under the rector of the High School, and assistant. In this department, Latin, Greek, ancient history, geography, and the other branches of classical instruction are taught to boys and girls. The course for boys is the usual High School course of five years, Latin being taught in each of the five years, and Greek only in the three last. The girls have no regular course, but are taught in private classes by themselves The fee is 7*s.* 6*d.* per quarter.

4. *Department of Modern Languages*, under a master. In this department French and German are taught to boys and girls in separate classes, and at different hours. The fees are 7*s.* 6*d.* per quarter for French or German; for both combined 10*s.* per quarter.

5. *Drawing Department*, under the master of the "Stirling School of Art." This school of art was established in 1857 in connexion with the Science and Art Department at South Kensington, and it is held in the drawing class-room of the High School. Thus the High School pupils obtain the benefit of instruction in drawing under a trained teacher, and of Government examinations, without the necessity of leaving their own premises. The examinations are conducted by an inspector, who brings his own copies and examples to be drawn in his presence in a given time. These embrace freehand, geometry, perspective, mechanical, model, and memory drawing. The exercises are collected and sent to London, where they are examined, and their merit is determined. Prizes, and cards certifying proficiency are awarded by the department to successful students. The fee for pupils of the High School is, including all branches, 7*s.* 6*d.* per quarter for five hours a week.

There are also recognized teachers of gymnastics, music, and dancing who are licensed by the patrons to teach at the High School, and attend for that purpose certain days in each week. The matriculation fee is 2*s.* 6*d.* per annum, payable at entry, for janitor, coals, &c. The quarter days are first Tuesday of August, 24th October, 15th January, and 8th April, and the fees are payable in advance on quarter day. The following is the last edition of the general time table :—

HIGH SCHOOL OF STIRLING.—SCHEDULE OF CLASS HOURS.

Hours.	9–10.	10–11.	11–12.
1. English	II. Class. III. Class.	III. Class. IV. Class.	IV., V., VI., and Initiatory Classes.
2. Writing and Book-keeping	Classes.	—	Classes.
2. Arithmetic	—	Classes.	
2. Mathematics	—	Practical Mathematics.	
3. Classics	V. Class. I. Class.	V. Class. IV. Class.	IV. Class. III. Class.
4. Modern Languages			
5. Drawing Department	Class.	Class.	Class on Mondays, Wednesdays, and Fridays.

HIGH SCHOOL OF STIRLING.—SCHEDULE OF CLASS HOURS.—*continued.*

Hours.	12–1.	1–2.	2–3.	3–4.
1. English -	I. Class, Boys. V., VI., and Initiatory Classes.	—	Ladies' Private Class. VII. and VIII. Class.	VII. and VIII. Classes.
2. Writing and Book-keeping.	—	—	—	Classes.
2. Arithmetic -	Classes.	—	Classes.	
2. Mathematics -	Practical Mathematics.	—	Practical Mathematics.	Euclid's Elements.
3. Classics -	III. Class. II. Class.	—	II. Class. I. Class.	Ladies' Private Class.
4. Modern Languages.	Ladies' Junior French and German.	Ladies' Senior French and German.	Boys' Senior French and German.	Boys' Junior French.
5. Drawing Department.	Class.	Class.	Class on Tuesdays and Thursdays.	

Natural Philosophy, on Saturdays, 9–10 ; Phonography, 10–11. The hours for Music, Dancing, and Gymnastics may be known by applying to the Janitor.

Approved of by the Magistrates and Town Council, and ordered to be strictly adhered to.

Council Chambers, Stirling, 20th June 1864. JOHN MURRIE, Provost.

The masters of the five regular departments receive small fixed salaries, as well as the fees of their pupils. These salaries are contributed partly by the burgh and partly by three hospitals in the town of Stirling, in the following proportions :—

Teachers.	Burgh.			Coward.			Spittal.			Allan.			Total Salaries.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Classical master -	49	6	7	18	0	0	2	13	5	—			70	0	0
Do. Assist.	29	10	0	18	0	0	1	15	0	0	15	0	50	0	0
Arithmetic and writing	26	13	4	23	6	8		—			—		50	0	0
Do. Assist.	8	0	0	8	0	0	2	0	0	2	0	0	20	0	0
English teacher -	20	0	0	20	0	0		—		10	0	0	50	0	0
Do. Assist.	6	14	10	9	7	2	1	6	0	2	12	0	20	0	0
Modern languages -	28	13	4	17	3	4	2	18	4	1	5	0	50	0	0
Drawing master -	20	0	0	10	0	0		—		10	0	0	40	0	0
Total amount paid in salaries -													350	0	0

The number of pupils the last time it was returned to the patrons was, boys 227, girls 146, total 373. These pupils were attending classes as follows :—

English Classes	234
Writing and Arithmetic	200
Classics	60
Drawing	56
Modern Languages	35

At the time of my visit (June 1866) the members were rather larger than these in all the departments, but the proportions were much the same in the different departments.

The buildings are modern, and were designed on a very grand scale but have not been completed. A committee of the town council was first appointed in February 1844 to consider the proposal of the erection of these buildings. In September 1852 Col. Tennent offered to subscribe 1,000*l.* if the work of erecting them was begun within that year, and in November 1852 subscription lists were opened, and plans were ordered. It was intended that the buildings should form a quadrangle, consisting of class-rooms, hall, library, museum, janitor's house and offices. But the contractor failed, and only one side of the quadrangle, consisting of janitor's house and class-rooms, has been completed. This portion of the intended buildings was opened in the year 1856, and the cost, so far, has been provided as follows :

Col. Tennent subscribed	£1,000
The Town Council subscribed, from the Burgh Funds	1,000
The public subscribed about	2,100
Total Subscriptions	£4,100

The building cost, so far, about 6,000*l.*, and the deficiency amounting to 1,900*l.* has since been made good by the burgh out of the burgh funds, so that the total amount paid by the burgh for these incomplete buildings has been 2,900*l.* as against 3,100*l.* of private subscription. The class-rooms are fair, but not particularly good. The offices which are said to be only temporary are very bad indeed. They are, like those of Glasgow, merely exposed holes. There is no grass playground or other place of recreation.

The teachers were all good enough to permit me to listen to their teaching, and to question their scholars.

The classical department is well taught by the rector (M.A., Edinburgh,) and his assistant, who are vigorous, active, and efficient. The boys of the first year answered very well in the rudiments of grammar and syntax, and had evidently learnt the year's work very soundly and intelligently. They had also got through a large quantity of work. There were only six boys in the fifth year, *one of whom was a student in Edinburgh University*, and attending the classes both of the Professor of Humanity and the Professor of Greek. They were reading Thucydides ; and considering the short time that they had been acquainted with that author had made good progress ; but they were not able to take Paper XXII. at sight. The fifth-year boys and five of the fourth year took Paper XXI. with the following result. The piece of English for translation into Latin prose was read aloud to them as a test of spelling. It will be seen that their average age was only $14\frac{1}{2}$ years, and the average time that they had been in this school only $3\frac{1}{6}$ years. Thus it is evident that few of them had been through the regular classical course. The numbers are taken at random, and do not denote any rank or order in the class. Where a blank is left the question was not attempted.

No.	Age.	Time in the High School.	Class.	Errors in Dictation.	Paper XXI.			
					Question 1. Max. 50.	Quest. 2. Max. 30.	Quest. 3. Max. 20.	Total, Max. 100.
1	14	7 years -	V.	0	30	25	18	73
2	14	2½ „ -	„	0	25	15	15	55
3	14	3 „ -	„	0	20	10	15	45
4	15	2½ „ -	„	0	10	—	5	15
5	15	1¾ „ -	„	0	8	5	10	23
6	14	1¾ „ -	„	0	10	10	10	30
7	15	5 „ -	IV.	1	40	20	—	60
8	14	4 „ -	„	0	20	15	—	35
9	15	3 „ -	„	0	—	25	—	25
10	16	3¾ „ -	„	0	10	—	—	10
11	14	1 „ -	„	0	0	—	—	0

In this classical department the pupils learn none of the text of their authors by heart. This is a common defect in the classical teaching of the burgh schools. They apply the logical analysis of sentences to their Latin authors, as well as the ordinary Latin syntax, and the master says they find it very valuable.

The English department is well furnished with maps and apparatus, and the master is a very vigorous and efficient teacher. I questioned both boys and girls in this department, and found the results to be very satisfactory, especially in the analysis of sentences, which they knew thoroughly well. The classes are very large, but they are well handled, and in good order.

In the writing and arithmetic department the classes are very large. The total number of pupils on the books of this department in June 1866, was 240, of whom 130 boys and 70 girls (200) were learning only writing and arithmetic; 20 were learning mathematics; and 20 book-keeping. These are all taught by one master and one assistant. Considering the great numbers, and the difficulty occasioned by an echo in the room, the classes were in remarkably good order. I examined classes in the first six books of Euclid, and was much pleased with the result. A good feature was the quantity of satisfactory work done by the inferior boys. The average level of work was very creditable. The same was the case with the algebra, and the arithmetic was also very fair. The master questioned a class on book-keeping. They answered well, in an intelligent manner, and he questioned them with much clearness, force, and readiness. Considering the proportion of teachers to scholars the result in this department is creditable, but the staff of teachers is most decidedly too small.

The drawing department had, in June 1866, 48 boys and 44 girls on the roll. It is taught by a master, without assistance. The room is satisfactory, and the teaching very fair. It would, however, be better if a strict course were followed, and not so much copying and shading from the flat permitted. This, however, the master finds it impossible to enforce. Pupils here, as at most other schools, are not willing to be taken through a severe course of the grammar of art, and very few of them attempt to pass the Government examinations in geometry, perspective, model drawing, &c. They wish to do something *pretty*, which they may show at home, and thus they lose a great deal of the value which they might obtain from their instruction. The drawing class-room, being a Government school of art, is of course well supplied with apparatus, models, and other requisites.

APPENDIX VIII.

As regards the General Expense of Boarding and Lodging in such towns as Ayr, Dumfries, Inverness, Perth, and Stirling, I obtained from reliable sources the following Estimates. It is interesting to compare with these Scotch Estimates the Expense of Boarding at English Grammar Schools in towns of a similar size.

Name of School.	Population.	Expense of Boarding.
Perth Academy - - -	25,250	40*l.* [1]
Colchester Grammar School -	23,815	37*l.* 16*s.* to 39*l.* 18*s.*
Warrington „ -	25,953	50*l.* to 55*l.*
Saint Bees „ -	24,293	20*l.* to 44*l.*
Wakefield „ -	23,181	30*l.* to 48*l.* about.
Ayr Academy - - -	18,573	25*l.* [2]
Doncaster Grammar School -	16,430	53*l.* to 74*l.* H.M. 31*l.* 10*s.* English Master.
Gloucester, The College -	16,320	33*l.* 12*s.* to 36*l.* 15*s.*
King's Lynn Grammar School -	17,000	42*l.* to 47*l.* 5*s.*
Dumfries Academy - -	14,023	30*l.*
Leamington Grammar School -	15,724	50*l.*
Kidderminster „ -	15,398	48*l.* 10*s.* to 53*l.* 15*s.*
Lancaster „ -	14,478	35*l.* 14*s.* to 39*l.* 10*s.*
Kingston-on-Thames Grammar School - - -	15,000	37*l.* 16*s.* to 58*l.* 16*s.*
Taunton College School -	14,176	52*l.* 10*s.*
Stirling High School - -	13,707	25*l.* [3]
Morpeth Grammar School -	13,796	33*l.* to 44*l.*
Durham „ -	13,743	40*l.* to 50*l.*
Keighley „ -	13,050	25*l.* 5*s.* to 30*l.* 10*s.*
Bingley „ -	13,437	40*l.* 10*s.* to 60*l.*
Bedford „ -	13,412	63*l.* to 78*l.* 15*s.*
Bury Saint Edmund's Grammar School - - -	13,316	46*l.* 4*s.* to 50*l.* 8*s.*
Inverness Academy - -	12,509	30*l.*
Newark Grammar School -	11,562	52*l.* 10*s.* to 63*l.*
Stafford „ - -	12,487	38*l.* In Dames House 21*l.* to 22*l.*
Tiverton „ - -	11,144	31*l.* 10*s.* to 42*l.*

(1) My informant says, "I believe a boy could not be *comfortably* boarded in Perth "for less than 40*l.*" He adds, "I do not think that there are many boarders in "town at present; but during last session boys came daily by train, to attend the "Rector's classes, from distances of between 20 and 30 miles."

(2) This rate is "the average rate at which a lad of simple habits may obtain board "and lodging, with fire and light included, for the school session of 43 weeks. Some "actually spend less, receiving supplies of field and garden produce from home."

(3) This is the rate at which a boy taking a single furnished bedroom somewhere in the town, and living very frugally, might obtain board and lodging. The late Rector of the High School used to charge from 35*l.* to 45*l.* for board, lodging, and personal superintendence of studies, in his private house.

APPENDIX IX.

Tabular Comparison of certain Scotch and English Schools visited by me.

1. Name of School.	2. Population.	3. Number of Scholars.		4. Annual Endowment, or Public Funds.		5. Annual Fees of Instruction.	6. Subjects of Instruction obtained for these Fees.
		(a) Day.	(b) Boarders.	(a) Gross. £ s. d.	(b) Net. £ s. d.	£ s. d. £ s. d.	
Glasgow High School	394,864	700	None.	390 0 0	390 0 0	12 12 6 to 18 14 6	Class., Math., Mod. Lang., &c.
Edinburgh Ditto	168,121	300	None.	1,310 0 0	1,310 0 0	8 4 0 to 19 18 0	Ditto.
City of London School		641	None.	900 0 0	900 0 0	9 0 0	Ditto.
Aberdeen Grammar School	73,805	308	None.	1,180 0 0	1,180 0 0	4 18 0 to 9 2 0	Ditto.
Oxford Magdalen College School	30,000	28	63	214 8 8	214 8 8	15 0 0 (choristers free)	Ditto.
Do. Cathedral School		29	None.	80 0 0	80 0 0	10 10 0 (do.)	Class., Math., French, English.
Highgate Grammar School	11,082	81	49	905 3 7	483 2 10	5 5 0 to 15 15 0	Class., Math., Mod. Lang., &c.
Perth Academy	25,250	320	None.	225 0 0	225 0 0	15 0 0 to 18 0 0	Ditto.
Hammersmith Godolphin School	24,515	140	40	450 0 0	436 5 0	8 0 0	Ditto.
Reading Grammar School	27,000	6	None.	50 0 0	50 0 0	10 10 0 (average)	Classics.
Ayr Academy	18,573	390	None.	185 15 0	185 15 0	boys 5 2 0 to 13 16 0; girls 7 18 0 to 14 16 0	Class., Math., Mod. Lang., &c.
St. Olave's Grammar School	17,590	Upper 190; Lower 281	None. None.	4,350 19 8	2,000 0 0	None.	Upper: Class., Math., French. Lower: English.
Dumfries Academy	14,023	300	None.	264 0 0	264 0 0	7 0 0 to 10 0 0	Class., Math., Mod. Lang., &c.
Kingston-on-Thames Grammar School.	16,120	42	6	90 0 0	85 0 0	4 4 0	Classics.
St. Saviour's Grammar School	54,036	169	None.	286 0 0	220 0 0	6 0 0	Class., Math., French, English.
Stirling High School	13,707	370	None.	350 0 0	350 0 0	5 0 0 to 8 0 0	Class., Math., Mod. Lang., &c.
Tottenham Free Grammar School	13,240	88	None.	160 1 9	110 0 0	None.	English.
Enfield Free Grammar School	12,424	79	None.	281 7 4	209 11 5	None.	Ditto.
Inverness Academy	12,509	237	None.	309 9 10	309 9 10	2 10 0 to 10 10 0	Class., Math., Mod. Lang., &c.
St. Clement Danes Schools	15,592	94	None.	800 0 0	800 0 0	3 0 0	Class., Math., French.
St. Alban's Grammar School	10,853	23	10	142 10 0	135 0 0	4 0 0 to 6 0 0	Ditto.
Hamilton Academy	10,688	250	None.	98 12 4	98 12 4	1 14 6 to 4 3 0	Ditto.
Edmonton (Latymer) School	10,930	67	None.	649 4 0	450 0 0	None.	English.
Lewisham Grammar School	10,368	58	15	140 0 0	140 0 0	1 0 0 upwards indefinitely	Class., Math., Mod. Lang., &c.
Hitchin Grammar School	8,000	23	9	144 4 6	138 14 0	None.	English, Latin, French.

APPENDIX X.—MISCELLANEOUS.

i. Educational Hospitals. Pages 177–186.
ii. Modern Educational Institutions. Pages 186–214.

I propose, in this Appendix, to give a few notes of the results of my visits to those institutions in Scotland which are not burgh schools. A list of these institutions is given on page 2 of this report.

i. Educational Hospitals.

In pages 193–198 of my Report on Secondary Education in London is contained some account of hospital schools in that city. The educational hospitals in Scotland are not nearly so numerous as those in England, but their general character is much the same. Their scholars are middle scholars partly of the second, but chiefly of the third grade. They are admitted by patronage, and not by competition; and without any admission examination. The age of admission is generally between 7 and 10; that of superannuation is generally about 15. The education is entirely free of charge to the scholar, who is in addition usually boarded and clothed at the expense of the charity.

I was informed that there are at present 12 of these educational hospitals in Scotland, exclusive of two which are in course of erection. Of these I was only able to visit two, viz., Heriot's Hospital at Edinburgh, and Gordon's Hospital at Aberdeen. But I collected information in regard to some of the others. For this information I am chiefly indebted to Dr. Bedford, house governor and head-master of Heriot's Hospital; to whom I beg to express my thanks.

The first hospital established in Scotland was George Heriot's, at Edinburgh, in 1628, after the model of Christ's Hospital, London. The founder's bequest was little more than 23,000*l.*; and the present annual income is between 16,000*l.* and 17,000*l.*, with a prospect of still further increase. Out of a portion of this revenue 180 sons of Edinburgh burgesses receive a liberal board and education, followed by an apprentice fee of 10*l.* for five years, or an exhibition to the university of 30*l.* for four years. The surplus funds, amounting to several thousand pounds, are devoted to the education of upwards of 3,000 pupils in 12 foundation primary day schools, established by Act of Parliament in 1836.

The rest of the hospitals were established in the following order and localities, viz.: the Merchant Maidens in Edinburgh, 1695; the Trades' Maidens, Edinburgh, 1704; the Orphan Hospital, Edinburgh, 1734; Robert Gordon's Hospital, Aberdeen, 1732; George Watson's Hospital, Edinburgh, 1738; James Schaw's Hospital, Prestonpans, near Edinburgh, 1789; Louis Cauvin's Hospital, Duddingston, near Edinburgh, 1828; James Donaldson's Hospital, Edinburgh, 1844; Daniel Stewart's Hospital, Edinburgh, 1855.

The two educational hospitals in course of erection are James Morgan's Hospital, Dundee; and Fettes College, Edinburgh.

The following table (drawn up by Dr. Bedford) gives some interesting particulars in reference to these educational hospitals.

Name of Hospital.	Number and Sex of Pupils.	Grounds of Eligibility for Admission.	At what Age admitted.	At what Age leaving.	Class of Education given.	Annual Revenue.	Amount of pecuniary or other Aid on or after leaving.
1. George Heriot's	180 boys	Sons of Edinburgh burgesses, preference being given to the fatherless.	From 7 to 10	About 14	Liberal; viz., such as is given in the best middle-class day schools.	Upwards of *16,000*l.*	A complete outfit of clothes, &c., with 55*l.* to apprentices, or 120*l.* to college-bursars.
2. Merchant Maidens	80 girls	Daughters or granddaughters of merchant-burgesses of Edinburgh, or of ministers of the city or suburbs, or of those who have been governors or benefactors of the hospital	From 7 to 11	About 17	Liberal	About 5,330*l.*	9*l.* 6*s.* 8*d.*, besides some clothing.
3. Trades' Maidens	48 girls	Principally daughters or granddaughters of one of the 14 incorporated trades of Edinburgh.	From 7 to 11	About 17	Liberal	About 1,200*l.*	5*l.* 11*s.* 0*d.* for the purchase of clothing.
4. Orphan	†114 boys and girls.	Fatherless, or total orphans	From 7 to 10	About 14	Plain	About 2,420*l.*	None.
5. Robert Gordon's	150 boys	Sons or grandsons of burgesses of guild, or of any of the incorporated trades.	From 8 to 11	About 15	Liberal	About 3,890*l.*	7*l.* 10*s.* 0*d.* if the boy leaves Scotland, or 10*l.* if he remains in Scotland; half at the end of first year, and the remainder five years afterwards.
6. George Watson's	86 boys	Sons or grandsons of merchants, burgesses, or guild-brothers of Edinburgh, with a preference to the Merchant Company.	From 7 to 10	About 14	Liberal	About 6,500*l.*	6*l.* 6*s.* 0*d.* for outfit, with 50*l.* during apprenticeship, and 50*l.* under certain conditions, when 25 years old.
7. James Schaw's	21 boys	Name of Schaw, Macneill, Cunningham, and Stewart.	From 4 to 7	About 14	Plain	About 900*l.*	3*l.* yearly during apprenticeship.
8. Louis Cauvin's	26 boys	Sons of respectable but poor teachers, or of poor but honest farmers.	From 6 to 8	About 14	Liberal	About 1,200*l.*	10*l.* on leaving, if the boy be engaged in some suitable trade.
9. George Stiell's	4 boys and 2 girls	Poor children	From 7 to 10	About 14	Plain	‡About 500*l.*	5*l.*, on condition of good conduct for six months after being indentured.
10. John Watson's	63 boys and 40 girls.	Fatherless children of respectable parents.	From 7 to 9	About 14	Liberal	About 4,250*l.*	5*l.* on leaving, and 5*l.* spread over the next five years.
11. James Donaldson's	180 boys and girls, of which 70 are deaf-mutes.	Poor children, preference being given to the names of Donaldson or Marshall.	From 6 to 9	About 14	Plain	About 9,000*l.*	No pecuniary aid, unless in exceptional cases.
12. Daniel Stewart's	69 boys	Sons of poor but respectable parents in Edinburgh and Leith, preference being given to Stewart or Macfarlane.	From 7 to 10	About 14	Liberal	About 3,200*l.*	In needy cases, from 2*s.* to 5*s.* a-week during apprenticeship.

* About 4,000*l.* out of this Fund is devoted to the support of the 12 Heriot Foundation (Day) Schools (Primary). † Forty of these children have their board paid for them.
‡ Out of the revenue of this hospital is supported a free day school, with 145 male and female pupils.

George Heriot's Hospital, Edinburgh.

I shall not here enter into any account of the origin and foundation of Heriot's Hospital, Edinburgh. A full description of these and all other particulars relating to the hospital may be seen in Dr. Steven's "History of George Heriot's Hospital," a new edition of which was edited by Dr. Bedford, and published by Simpkin, Marshall, & Co. in 1859. The account of the foundation and working of the primary day schools, 12 of which are supported from the funds of Heriot's Hospital, is particularly interesting on page 209 *seq.* It is not, however, necessary for me, in a report on the subject of secondary education, to enter into any description of the nature or working of these primary schools. It will be sufficient to call the Commissioners' attention to the fact that the revenues of this hospital are in this manner partly applied in aid of elementary education. Having done so, I pass to that portion of the revenue and administration of the hospital which is concerned with secondary education.

The following points, in addition to those mentioned in the table on page 178, appear to me to be worthy of attention.

(1.) The governors of George Heriot's Hospital are the Magistrates, Ministers, and Town Council of Edinburgh. They divide themselves into committees for the purpose of working the different branches of the hospital, and they elect the applicants for admission. None but the sons of burgesses of the city of Edinburgh can be admitted. I am informed that no one can become a burgess unless he has resided three years in the city in a house of at least 15*l.* rental, and has paid 10 guineas for the burgess ticket; so that the boys admitted belong to the middle class. Girls are not admitted. The number of boys on the roll of the hospital is 180. In 1858 the hospital expenditure, comprehended under the head of "ordinary disbursements," was 10,174*l.* 18*s.* 5*d.* The estimated annual expense for the maintenance and education of each boy during the same year was—

	£	*s.*	*d.*
Maintenance, including clothing, washing, &c.	15	10	1
Education - - - - - - - -	8	15	5
Total	24	5	6

This estimation, however, is obviously based upon only a small portion of the total of the ordinary disbursements of the hospital. According to the published statement of the accounts of the hospital for the year 1865, the total amount of income of the hospital for that year was 23,927*l.* 9*s.* The amount of expenditure on the primary foundation schools was 4,389*l.* 9*s.* 10*d.*, and the amount of "ordinary disbursements" was 11,173*l.* 9*s.* 5*d.* These ordinary disbursements comprise the following headings:—Apprentice fees, 1,448*l.* 13*s.* 3*d.*; bursaries, 503*l.* 16*s.*; clothing, 1,473*l.* 14*s.* 2*d.*; victualling, 1,572*l.* 11*s.* 7*d.*; books and stationery, 257*l.* 13*s.* 7*d.*; coals, gas, water duty, washing, furniture and furnishings, repairs, improvements, &c., assessed taxes, rates, taxes, assessments, and other public burdens, 298*l.* 9*s.* 10*d.*; feu duties, insurance, salaries, 2,729*l.* 5*s.* 4*d.*; wages, 348*l.* 5*s.* 3*d.*; superannuation scheme, annuities, incidental expenses, 458*l.* 18*s.* 4*d.*; and law expenses and business charges, 410*l.* 17*s.* 10*d.* In this amount the expenses of the primary foundation schools are not included. If, from this total amount, the sum of 248*l.* 16*s.* expended on the out-bursaries be deducted, and the total remainder, 10,924*l.* 13*s.* 5*d.* be divided by 180, it will appear that the average cost of bringing up each boy in this hospital from about the age of 7 to

that of 14-15, of clothing, feeding, liberally educating, and starting him in life, is about 60*l.* per annum. The statement of accounts to which I have alluded is published by John Baxter, James Court, Edinburgh. The salaries of the teachers are as follows :—

	£	*s.*	*d.*
House Governor and Head Master	365	0	0*
Classical Master	210	0	0
Mathematical Master	180	0	0
English Master	170	0	0
Two Assistants (one has 60*l.* and board, the other 80*l.*)	140	0	0
Writing Master (for four hours a day, five days a week)	110	0	0
French Master (for five hours a week)	52	10	0
Drawing Master	52	10	0
Singing Master	35	0	0
Dancing Master	35	0	0
Teacher of Practical Mechanics	32	0	0
Total	£1,382	0	0

(2.) The house governor, who is also head master, "possesses the "right to give such directions or make such suggestions as he may con- "sider necessary for the successful development of all the classes ;" and is consequently responsible for the working of every department of the instruction. He visits and examines periodically all the classes, reports upon their condition to the governors, and conducts a portion of the instruction of the senior scholars himself. The domestic supervision of the hospital is also committed to his charge. His position, therefore, more nearly resembles that of an ordinary English head master than that of a burgh schoolmaster. Whether the system of co-ordinate principal teachers be suitable to day schools or not, it can hardly be thought suitable at any rate to boarding schools such as educational hospitals.

(3.) The 180 boys in the hospital are divided into six classes, called "sections." In the first (lowest) and second sections only English subjects are learnt. Latin is begun in the third section, and Greek in the fifth section. In each section are about 30 boys. Promotions are made by selection. Marks are given for all the lessons during a session, and those who obtain the greatest number of marks are promoted. If at the age of 12 a boy has not obtained a fair place in the school, but appears so deficient in English instruction as to render it undesirable that he should spend any more of his time in classical studies, the house governor and masters take his case into consideration. "A circular is at the same time forwarded to such boy's guardians for "the purpose of ascertaining from them if they have fixed upon any "particular profession or trade for their boys ; and the replies received "are taken into consideration in connexion with the boy's apparent "abilities. A certain number are then separated altogether from "classical studies, to be thenceforth, during the remainder of their "course, engaged in English and commercial studies alone." The amount of work required of the boys is very heavy for their age. A thorough and minute system of place-taking and marking for lessons is maintained, and the greatest care seems to be exercised to make the boys diligent, and create among them some feeling of emulation, spirit, and interest in their studies. Quarterly reports on the conduct, progress, &c., of each boy are sent home by the house governor to his parents or guardians.

* Besides house and taxes free, and allowance of 20*l.* towards life insurance policies.

(4.) Boys are superannuated, and leave the hospital at the first half-yearly term after they have reached the age of 14 years. But if elected to bursaries they remain nearly a year longer in the hospital. "Those "who become apprentices, receive 10*l.* annually for five years, and 5*l.* "at the close of their apprenticeship, if they have conducted themselves properly. During that period they are allowed free tickets to "the School of Arts, and to the Edinburgh Mechanics' Subscription "Library. Those wishing to follow *any of the learned professions*, "and who, upon examination, prove themselves hopeful scholars, are "sent to the University of Edinburgh for four years after leaving the "hospital, with an allowance of 30*l.* per annum."

(5.) These allowances are called "Bursaries." George Heriot's bursaries are of two kinds, viz :—

(*a*) *House Bursaries*, which are given to scholars of the hospital on two conditions, viz., *first*, that they be intended by their parents or guardians for a liberal profession. *Second*, that they be considered by the head master likely to prove "hopeful scholars." They are given for three purposes, viz., *first*, for going to study in Edinburgh University ; *second*, for entering liberal professions, such as law, medicine, &c. ; *third*, for entering the profession of teacher. ["Any such boy "who may desire to follow the profession of *teacher* shall, after leaving "the hospital, be required, in order to perfect his knowledge in the "art of teaching, to give such attendance in one of the foundation "schools as the committee may think necessary, and may from time to "time determine. Should it be judged expedient, he may be apprenticed in one of these schools for one year ; in which case he shall be "entitled for that year to the sum of 4*s.* per week, as apprentice, and "10*l.* to account of his bursary allowance. He shall, also, during the "same period attend the private class of the classical master of the "hospital."—Extract from the Regulations of the Education Committee of Governors in regard to Bursaries ; Article IV.] All house bursars, for whatever line of life they be intended must undergo an examination by the education committee of the governors previously to election to bursaries.

(*b*) *Out Bursaries*, which, in accordance with a codicil to George Heriot's will, are given to boys not otherwise connected with the hospital. They are not given by strict competitive examination, but by patronage, upon a qualification examination. "The governors shall "select *the most deserving* applicants (for out-bursaries) who shall "undergo an examination by the committee before the commencement "of the session of college, and if found qualified, shall have the bursaries awarded to them." "In deciding on the applications for "out-bursaries, the governors shall always have a kindly regard to the "claim of any boy who has gained the highest honours in the High "School of Edinburgh, and who requires aid for carrying forward his "education at the university." The qualifying examination for out-bursars is similar to that for house bursars. But every out bursar is required to proceed to the university. These out bursaries are not given for assistance in entering a profession, &c.

These regulations for the bursaries are in many respects very liberal, and present points worthy of the Commissioners notice in dealing with English educational hospitals and other endowments. It is, perhaps, to be regretted that some at least of these bursaries are not thrown open to competition upon examination. On this question, however, see page 65.

Besides the above-mentioned bursaries there are two others for students of divinity and one for students of medicine.

(6.) The antiquated *dress* required by the statutes of the hospital has been exchanged for one more suitable to modern customs.

(7.) There is, in the hospital, "a large library, containing, in addi-"tion to most of the standard works of literature, a large number of "such books as are most likely to form a taste for reading." The boys are allowed the use of this library, which is also supplied with the periodicals and newspapers of the day. They have thus a quiet place in which they may read out of school hours. There is also a good day room where boys may talk and play at quiet games, such as do not require to be conducted out of doors. The boys are also allowed to play cricket on the grass in the hospital courts. The greatest care appears to be taken for the comfort and well-being of the boys in every respect.

These are the features of the system of this educational hospital which seem to me to be most worthy of the Commissioners attention. It would, I think, be difficult to find a more favourable example than this, by which to judge of the results of hospital education. Everything that the system will permit appears to be done by the governors and head master, not only to make the boys happy and comfortable, but also to stimulate them to mental exertion and intellectual vigour. And the liberality of many of the regulations in this hospital is worthy of imitation by most of our similar institutions in England.

By the kind permission of the governors and head master, I heard the teaching of some of the sections, and examined them, both orally and by written papers, in arithmetic, Euclid, geography, history, French, Latin, and the Greek Testament. I shall not here enter into the particulars of that examination, but shall only remark on the general result. The result was not in my opinion satisfactory, except in the English subjects, which were very creditable. In the other subjects the boys seemed to me inferior to the general average of boys of a similar age in a good burgh day-school, such as Ayr Academy. I was particularly dissatisfied with their knowledge of French. This subject is only begun in the fifth section, that is at the same time with Greek; and many boys leave the hospital after only a few months' study of it; some leave without ever having studied French at all, having failed to reach section fifth. The teaching of the subject is begun too late, and is not good while it lasts. The teaching also of at least one of the other masters was not satisfactory, and formed a strong contrast with the life, energy, and vigour of burgh school teachers. The boys too, in spite of all the efforts made by the head master to awaken them by constant inspection and careful examinations, appeared to me to be dull and inferior in brightness and intelligence to the day scholars in the burgh schools. They are extremely docile, remarkably well-behaved and well-mannered, but less full of life and vigour in their studies than the scholars of a good burgh school.

The causes of this moderate result seem to me to be—

(1.) The masters are not stimulated, as the burgh school teachers are by the publicity of their work and their dependence on fees.

(2.) The boys are not stimulated, as the day scholars in burgh schools are, by an extended competition and the study of subjects which are of their own selection, but are isolated in a kind of monastic life. With very little effort a scholar of the hospital is sure of a bursary.

(3.) The curriculum is rather too ambitious and extensive for the age of the boys. Quality is sacrificed to quantity.

The following is a list of the Bursars to the University of Edinburgh elected on George Heriot's foundation, for the Session 1865–6:—

Name.	Where Educated.	Date of Election to Bursary.	Date of Expiry of Bursary.	Place of Residence.
HOUSE BURSARS.				
1. William Dunnett	Heriot's Hospital	1863	1867	3, W. Preston Street.
2. George Waugh	Do.	—	—	110, Nicolson Street.
3. John Stewart	Do.	—	—	6, Veitch's Place, Stockbridge.
4. Thomas Pollock	Do.	1864	1868	19, Canongate.
5. James Burnet	Do.	—	—	6, Brunswick Street.
6. David S. Melville	Do.	—	—	27, Haddington Place.
7. John Masterton	Do.	—	—	74, Abbeyhill.
BLAIR BURSARS. (*Divinity.*)				
Henry C. Nicolson	Do.	1863	1867	28, Carrubber's Close.
John R. Wardrop	Do.	1864	1868	2, S. W. Circus Place.
ABERCROMBIE BURSAR. (*Medical.*)				
Archibald Wardrop	Do.	1865	1869	2. S. W. Circus Place.
OUT BURSARS.				
1. Adam B. S. Watson	Blair Lodge Academy, near Polmont	1862	1866	7, Grove Street.
2. John Hunter	St. Mary's School, Edinburgh	—	—	4, Upper Grove Place.
3. John Miller Darling	Carmichael School, Lanark	—	—	Carmichael, Lanark.
4. T. Hill Jamieson	High School	1864	1868	29, Guthrie Port, Arbroath.
5. James Coullie	Normal Institution	—	—	3, Barony Street.
6. Thomas Whillas	Old Assembly Close School	—	—	6, Heriot Bridge.
7. James S. W. Irvine	Grammar School, Kirkwall	—	—	12, Salisbury Street.
8. David H. Marshall	Donaldson's Hospital	—	—	3, Cambridge Street.
9. William Durham	High School, Stirling	1865	1869	Auchenbowie, Stirling.
10. James Murray	High School, Edinburgh	—	—	36, Dundas Street.

Gordon's Hospital, Aberdeen. See the Table, page 178.

It was impossible for me, in the very brief time at my disposal, to make any such examination of the scholars in this institution as should enable me to pronounce an opinion upon the quality of the education given in it. Fortunately, however, the school had, so lately as in the preceding month, May 1866, been thoroughly examined by an independent examiner, a gentleman of much experience in the inspection and examination of schools, and in whose judgment I am sure that the Commissioners may place entire confidence. His examination, which had evidently been searching and thorough, lasted through two days, and the results of it were embodied in a report to the governors of the Hospital, which report they kindly permitted me to see. The examiner divided his report into two parts, viz.:—

I. The Elementary Branches. II. The Higher Branches.

With regard to the former, he says, "The former day (the first of the "two days occupied by the examination) was entirely occupied in the

" examination of the classes in the more elementary branches—reading, " writing from dictation, writing from memory, composition, grammar, " arithmetic, and geography. In all these subjects except the last I " adopted the method of individual examination as prescribed in the re- " vised code of the Committee of Council on Education, not following all " the details of that scheme, but adapting the programme to the special " character of the institution, and the advancement of the boys. In " this way I believe I am able to form and to submit to the governors " a more accurate estimate of the value of the institution as a seminary " of elementary education, than any other mode of examination which " has yet been devised can possibly afford." He then proceeds to show, by tables drawn up in the very complete method which the revised code has introduced, what were the performances of the scholars in each of the four sections ; how many passed and how many failed in an individual examination upon the above-named subjects ; commenting also generally upon the merit of the work of each section. It will, however, be perhaps sufficient for the present purpose if I give the summary of his conclusions upon this important branch, the elementary instruction. He says, " With these papers and details before them, I " am sure the governors will concur with me in my general conclusion " that the elementary instruction given in this institution, though not " beyond the reach of improvement, is thoroughly sound, substantial, " and efficient. I find no defects of any importance to be pointed out." He then proceeds to the second branch, the higher subjects ; and says, " My second day was devoted to the examination of the classes in " mathematics, natural philosophy, chemistry, Latin, French, drawing, " and religious knowledge."

(1.) Mathematics and Natural Philosophy (Mr. Gerrard). I find no occasion to alter my high opinion of Mr. Gerrard's ability as a teacher of these subjects. The success at college of two or three pupils of special merit, though it must be very gratifying to the governors, would not in my opinion be enough of itself to indicate good teaching. But there is throughout the classes an intelligent comprehension of their work, such as one looks for in vain among boys indifferently taught. The amount of attainment in mathematics is much the same as last year. There are classes in Euclid at different stages from Book I. to Book VI., and in Algebra as far as Quadratic Equations. The natural philosophy is of course of a popular and elementary kind, but it is practical and useful.

(2.) Chemistry (Mr. Dale). A similar remark applies to Mr. Dale's lessons on Chemistry. They contain a great amount of information about what is usually called " common things," which the boys have been fairly successful in picking up, and will afterwards find to be of great value.

(3.) Latin (Mr. Strahan). There are numerous classes, as there were last year, in the " Rudiments," and an easy book of " Lessons." There is also, however, a small class reading Cornelius Nepos. This last, so far as it goes, supplies the single step which I suggested last year as a desirable completion, if compatible with the general working of the institution, to the boys training in this subject. It is perhaps impossible, without a greater disturbance of other classes than the end would justify, to bring up any considerable number of the boys to this stage of progress. But there is no reason why it should not be kept in view as a thing to be aimed at, so far as the circumstances will allow. The class now in Nepos translate very fairly, and are well drilled in grammatical analysis. It is in fact true of all the classes that what

they have done is done well, and that a sure foundation, at least for Latin scholarship, is laid in an accurate knowledge of the rudiments.

(4.) French and Drawing (Mr. Jazdowski). The highest class wrote with great readiness and accuracy a translation of a passage taken at random from a part they had read of the "Histoire de Charles XII." The others read from collections of fables, &c. All are carefully drilled in the grammar, including the inflections of the verbs in their various forms. They have also a very fair knowledge of idioms, and of the chief peculiarities in the syntax of the language. These classes are for practical purposes a most important part of the training of the institution. They are very well taught. Numerous excellent specimens were exhibited in freehand, architectural and mechanical drawing. Lastly, he proceeds to report upon the religious and moral training, of which he speaks very favourably. While on this subject he says, "It ' is under this head that I ought to remark on the practical moral " training and behaviour of the boys. For though the latter may " depend on mere discipline, which is not necessarily founded on " religion, yet the daily life of a school cannot but have an important " bearing on any religious impressions which its training is intended to " produce. And that religious teaching is not worth much which is " compatible with tyranny and injustice on the part of the teacher, or " rudeness and insubordination on the part of the pupil. Happily no " such evil seems to exist here. As a seminary for training not only " good scholars, but good boys, boys who will become honest, indus- " trious, and respectable men, I have the highest opinion of the " institution. I do not lose sight of the question which has been so " keenly discussed, whether such institutions are not of necessity an evil. " Nor do I presume to settle it. But I cannot help remarking that " the disadvantages which are alleged to be connected with an education " of this description seem to be counterbalanced in this case, if not " completely outweighed, by the benefits conferred. That boys should " be trained to habits of cleanliness, order, and politeness can hardly be " of small consequence. But far more important is it that they should " learn, as they do here very effectually, practical lessons of honesty, " truth, and manliness. The feeling between the boys and the teachers " seems to be of the healthiest description. There is no overbearing " oppression on the one side nor any insubordination or ill-suppressed " grumbling on the other. Obedience is required and expected as a " matter of course, and as a matter of course it is promptly and " cheerfully given. Honesty in the working of exercises is held to be, " as it is, a matter of the very highest importance. The boys, " especially the older ones, are duly respectful without unnecessary " restraint, full of boyish glee and spirit, yet perfectly quiet and " orderly at their work. I could name a few, were it not invidious, " who seemed to me particularly amiable, well-behaved, and trust- " worthy ; but I could not name one of whose behaviour I saw cause " to complain."

This hospital was founded in imitation of Heriot's Hospital, Edinburgh, and resembles it in most respects of government, discipline, and education. There are bursaries to Aberdeen University attached to the hospital. I was much pleased by the short inspection which I was able to make of the domestic and educational arrangements of the hospital. It appeared to me that there was an amount of life and vigour in the teaching which is not usual in hospital schools. *This result may be partly due to the noteworthy fact that this hospital is examined and reported on by a professional examiner, entirely independent of the institution.* I was assured that the stimulus afforded by this examination and report is very great.

These were the only two hospitals that I was able to find time to visit. I do not presume to draw from my visits to them any general conclusions in regard to the Scotch educational hospitals. I only desire to point out any facts which having come under my own observation appear worthy of the Commissioners' notice.

The house governor and head master of Heriot's Hospital made the following among other suggestions in a pamphlet which he wrote on the subject of educational hospitals. They appear to me to be very deserving of attention.

(*a*) "That in all hospitals, but especially those where the pupils are "admitted very young, the resident pupils should have the opportunity "of mixing with a still larger number of non-resident pupils, in order that "the higher standard of the outer world which regulates the notions and "tastes of home-bred boys, might supersede the lower standard which is "to be looked for in the little world of a hospital. The experiment "already made at George Watson's Hospital of admiting a small number "of out-pupils does not sufficiently test the desirableness of my sug-"gestion, because the influence from without is overpowered by the "greater influence from within."

(*b*) "That the supervision of the boys in their playground, play-"rooms, and sleeping-rooms should be as much as possible under the "charge of resident teachers rather than wardsmen."

(*c*) "That the tests periodically employed to ascertain the educational "condition of the hospitals should not be simply of a merely popular "nature, as is the case in most Scottish schools, but that some mode of "examination be adopted, similar to the middle-class examinations, "with the view of stimulating to advanced scholarship, whilst undue "attention to the best boys to the neglect of the weaker ones should be "prevented by every out-going boy being examined before leaving by, "or in the presence of, a committee of governors, as is at present the "case in Heriot's and George Watson's. *A stimulus of this kind is "especially necessary in institutions where satisfactory educational "results are not indicated by a numerical increase in the school, and "where the fidelity, or even zeal, of the teacher is not followed by any "pecuniary advantage.*"

These suggestions, or at any rate the questions which they involve, appear to me well worthy of consideration; and the last remark, which I have italicised, is one which, *mutatis mutandis*, might be applied to the majority of our endowed secondary schools in England.

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ii. Modern Educational Institutions.

The increase of wealth in some of the large towns of Scotland has caused the same social distinctions to arise which are found in England to prevent the mixture of children of different social classes in the same school. On this subject I have spoken generally on page 18. This desire for separation, combined with other local causes, has caused the establishment in some of the burghs of new schools, generally called "academies," of a proprietary nature. Of these I shall here only notice two, viz., the Academy of Glasgow, and the Academy of Edinburgh. I have already mentioned, page 2, that the time at my disposal did not permit me to visit many of these modern establishments, and that those which I did visit I had only time to inspect very briefly. But the Commissioners may be interested in hearing something of the character of these institutions. They would not have been established had there not been a certain number among the citizens who were dissatisfied with the existing educational establishments of their burghs. It may therefore be possible to learn from a study of the constitution of these new

academies in what respects the old burgh schools have failed to satisfy some of the burgesses. I found a not inconsiderable party in Scotland which was dissatisfied with the condition of the burgh schools. And though, in comparing them with the grammar schools and other endowed schools which it was my duty to visit in England, I have felt it necessary to give an account of them which must appear favourable, I do not thereby intend to imply that they are by any means perfect, but only that they are on the whole decidedly in a better condition than the English grammar schools of a similar grade which I visited.

The following is the account given by the directors of *The Glasgow Academy* in their official prospectus for the session of 1866–67. This school was I believe founded mainly on social grounds, the west end of Glasgow, for which the school was intended to provide, being the fashionable quarter of the town. It will be seen that the academy resembles, in some features of its constitution, the high school. There are, however, many differences ; and these, as well as other points worthy of notice in the following account, I have italicised.

"The Glasgow Academy is a public school, intended to afford the best means of acquiring a sound and comprehensive education, and carefully adapted to meet the various wants of the present time. *It was erected by a body of shareholders in* 1846 *with the express view of providing for the West End* and the city in general a thoroughly equipped educational institution, in which the study of classics and mathematics should be combined in a greater measure than usual with systematic instruction in the English, French, and German languages and other useful branches of knowledge.

"The building, which is admirably situated, contains ample accommodation for upwards of 500 boys, there being 10 spacious class-rooms, a library, a gymnasium, and a playground of considerable extent, with covered sheds. The various departments are conducted by masters of eminence and experience in their profession; and *the rector, who is responsible to the directors for the practical details of the school, exercises a constant superintendence over all the departments.*

"The system of education embraces a preparatory course of English, arranged in three classes, and extending over a period of three or four years. The directors invite the particular attention of parents to this feature of the academy. These classes receive the undivided attention of the head master and his two assistants three hours a day; and, as the system of instruction pursued is intended specially to prepare boys for the higher studies of the classical course, they have the important advantage of following one uniform and harmonious plan throughout their whole school career.

"*The classical course, which is generally commenced at the age of nine or ten, extends over a period of five years.* During the first and second years a most minute and accurate acquaintance with the inflexion and structure of the Latin language is obtained, and the pupils gradually advance to the perusal of the higher authors, including Virgil, Horace, Curtius, Cicero, Tacitus, and Livy. *The elements of Greek are begun during the third session,* and portions of Xenophon, Herodotus, and Homer are read before the end of the curriculum. At the same time a regular course of ancient history and geography, as well as of Greek and Roman antiquities, is steadily followed.

"*The directors believe that a strict adherence to the regular curriculum will be found to lay the best foundation for acquiring and using knowledge,* not only at school, but also in the practical business of life; and they feel greater confidence in *earnestly recommending it to parents and guardians,* because they are now able to announce that, throughout the whole of the Latin course, the study of English under the English master will be regularly pursued by all the boys. During the first three years an hour a day will be devoted to elocution, spelling, grammar, history, geography, &c.; while, during the last two, regular instruction will be given twice a week both in English composition and in critically examining passages in Milton, Shakspeare, or Macaulay.

"At the same time there are special English classes intended to prepare for business, and comprehending a wide range of history, geography, and English

literature and composition. Those boys in the classical department whose future prospects may render it desirable to dispense with some portion of the regular studies will have an opportunity of partially availing themselves of these classes.

"*French is begun at the commencement of the third year of the classical course, and German in the middle of the fourth.* An accurate grammatical knowledge of both languages is thus acquired; while in the former the more advanced boys are able to write with facility, and to speak with considerable ease and correctness of pronunciation and idiom.

"In the mathematical department an hour a day throughout the whole course, and during the last two years an hour and a half, is devoted to arithmetic, algebra, and geometry. Thus all the pupils have ample opportunities of acquiring habits of accuracy and expertness in the ordinary rules of arithmetic—so necessary for the business of life—and at the same time are introduced to those higher studies in mathematics, which are so valuable in themselves and exercise such an important influence on mental training.

"In the classes for writing and book-keeping these subjects receive that prominence and attention which a commercial community demands.

"*Natural science, introducing to some acquaintance with animals, plants, minerals, &c. now forms part of the regular course;* and it is earnestly hoped that all the more advanced pupils will embrace the opportunity thus afforded of studying subjects so inviting, and tending so directly to cultivate the taste, to open up sources of enjoyment in every locality, and to encourage habits of observation and methodical arrangement.

"Fencing and gymnastics are taught daily for two or three hours, so arranged that every boy may enjoy the relaxation of these exercises after completing about the half of his ordinary school work.

"Instruction in the practice and theory of vocal music is given throughout the first five years of the course.

"Drawing forms a part of the regular business of the school for all who wish to avail themselves of it, and an experienced master is daily in attendance at convenient hours.

"*The directors are anxious that the whole system of education should be pervaded by a religious spirit.* Accordingly, all the classes are opened every morning by reading a portion of the Scriptures, and by prayer. A regular course of religious instruction is followed, so arranged that every boy is expected to acquire an extensive and correct knowledge of the historical portions of the Old and New Testaments. The more advanced classes have their attention directed to the types in the Old Testament, their fulfilment in the New, the evidences of Christianity, &c.

"The school hours extend from 10 a.m. to 4 p.m., with suitable intervals, care being taken that the boys in the junior classes shall not mingle on the playground with those more advanced.

"The session commences in the beginning of August and terminates at the end of May.

"*Parents are respectfully informed that the classes are always open for inspection, and they are specially invited to visit them every Wednesday.*

"Fees, according to the subjoined scale, are payable quarterly in advance, on 1st August, 16th October, 1st January, and 16th March."

Table of Fees.

	Per Quarter.
English	£0 16 0
English and Writing	1 9 0
English, Writing, and Arithmetic	1 14 0
First Latin Class, including English, Writing, and Arithmetic	2 10 0
Second Latin Class do.	2 10 0
These five Classes receive instruction in Music at a fee of 5*s.* per Session.	
Third Latin Class, including English, Writing, Arithmetic, and French	3 5 6
Fourth Latin Class do. do. and German	3 5 6
Fifth Latin Class do. do. do.	3 5 6

Special English Classes.

Fourth Class, including English, History, Geography, French, Writing, and Arithmetic - - - - - - 2 10 0
Fifth Class, do., French and German - - - - 3 5 6

These five highest Classes are expected to attend the Lectures on Natural Science. Fee, 7*s.* 6*d.* per Session.

No extra charge, except a Matriculation Fee of 2*s.* 6*d.* per Session.

N.B.—Five per cent. discount when there are three, and 10 per cent. when there are more than three pupils from the same family.

TABULAR VIEW OF THE COURSE OF STUDY.

Preparatory English Department.

First Class.—Constable's First, Second, and Third Reading Books. Reid's Outlines of Geography. Oral Lessons in Scripture History. Writing or Arithmetic.

Second Class.—Constable's Fourth Reading Book. Reid's Outlines of Geography. Bible. Catechism. Writing and Arithmetic.

Third Class.—Constable's Fifth Reading Book. Reid's Geography. Lennie's Grammar. Collier's Pictures of English History. Coutie's Spelling Guide. Bible. Catechism. Writing and Arithmetic.

Classical Department.

First Class.—*English.*—Scott's "Lady of the Lake," Cantos I. II. III. Collier's Pictures of English History. Lennie's Grammar. Reid's Geography. Spelling Guide.

Latin.—Edinburgh Academy Rudiments and Delectus. Bible.

Writing and Arithmetic.

Second Class.—*English.*—Scott's "Lady of the Lake," Cantos IV. V. VI. Collier's British History. Lennie's Grammar. Sullivan's Geography Generalised. Spelling Guide.

Latin.—Rudiments. Delectus. Cæsar. Smith's Principia Latina, Part IV. Smith's Smaller History of Rome. Bible.

Writing and Arithmetic.

Third Class.—*English.*—Cowper's Task, Books I. and V. Lennie's Grammar. Dalgleish's Grammatical Analysis. Collier's British History. Sullivan's Geography Generalised. Composition.

Latin.—Cæsar, Ovid, Virgil. Smith's Principia Latina, Part IV. Smith's Smaller History of Rome. Pillans' First Steps in Ancient Geography. Bible.

Greek.—Edinburgh Academy Greek Rudiments.

French.—Pronunciation. Caron's Grammar. Hall's First Reader.

Writing, Arithmetic, and Algebra.

Fourth Class.—*English.*—(Two hours a week.)—Shakspeare's Macbeth, Acts I. II. Grammar. Composition.

Latin.—Sallust. Cicero. Virgil. Composition. Antiquities. Smith's Smaller History of Greece. Ancient Geography. Bible.

Greek.—Rudiments. Bryce's Second Greek Book. New Testament.

French.—Grammar. Havet's French Studies. Conversation.

Writing.—Maclaren's Book-keeping.

Arithmetic.—Algebra.—Euclid's Geometry.

Fifth Class.—*English.*—Shakspeare's Macbeth, Acts III. IV. V. Grammar. Composition.

Latin.—Livy. Cicero. Horace. Composition in Prose and Verse. Antiquities. Smith's Smaller History of Greece. Ancient Geography.

Greek.—Grammar. Arnold's Prose Composition, Part I. Xenophon. Homer.

Bible.—The Types. Prophecies. Evidences of Christianity.

French.—Grammar. Havet's French Studies. Composition. Correspondence and Conversation.

German.—Otto's German Grammar and Reader.

Arithmetic.—Algebra. Euclid. Trigonometry. Mensuration. Analytical Trigonometry and Geometry.

Writing.—Maclaren's Book-keeping.

Special English Classes.

(Two hours daily.)

Fourth Class.—*First hour.*—Collier's British History. Sullivan's Geography Generalised. Bible.

Second hour.—Goldsmith's Deserted Village. Lennie's Grammar. Composition. Spelling Guide.

Fifth Class.—*First hour.*—Collier's British History. Sullivan's Geography Generalised. Bible.

Second hour.—Shakspeare's Tempest. Grammar. Composition. Spelling Guide.

Extra Classes.

1. *Landscape, Figure, and Mechanical Drawing.*—Senior Class.—Monday, Wednesday, and Friday, from 9 to 10 a.m. Fee, 1*l.* 1*s.* per Quarter.
Junior Classes.—Tuesday and Thursday, from 12 to 2 p.m. Fee, 10*s.* 6*d.* per Quarter.
2. *Fencing and Gymnastics,* daily from 12 to 2. Fee, 21*s.* per Session.
3. *Dancing and Deportment.*—Fee, 1*l.* 11*s.* 6*d.* per Quarter.

TIME TABLE. Session 1866–67.

English Department.

First Class.

From 10 to 12 or 1	English, as in Tabular View.
„ 1 „ 2	Writing or Arithmetic.

Second Class.

From 10 to 1,	English, &c.
„ 1 „ 2,	Writing and Arithmetic.

Third Class.

From 10 to 11	Writing.
„ 11 „ 12	English.
„ 12 „ 1	Arithmetic.
„ 1 „ 2	Monday, Wednesday, Friday—English. Tuesday, Thursday—Music or Drawing.
„ 2 „ 3	English (in two Sections).

Classical Department.

First Class.

From 10 to 11	Junior Section—Latin. Senior Section—Arithmetic.
„ 11 „ 12	Senior Section—Latin. Junior Section—Arithmetic.
„ 12 „ 1	Monday — Latin. Wednesday, Friday — English. Tuesday, Thursday—Music or Drawing.
„ 1 „ 2	English (in two Sections).
„ 2 „ 3	Both Sections—Latin.
„ 3 „ 4	Writing.

Second Class.

From 10 to 11	Senior Section—Latin. Junior Section—Arithmetic.
„ 11 „ 12	Junior Section—Latin. Senior Section—Arithmetic.
„ 12 „ 1	Both Sections—Latin.
„ 1 „ 2	Monday — Latin. Wednesday, Friday — English. Tuesday, Thursday—Music or Drawing.
„ 2 „ 3	Writing.
„ 3 „ 4	English (in two Sections).

THIRD CLASS.

From 10 to 11	English.
„ 11 „ 12	Writing.
„ 12 „ 1	Monday, Wednesday, Friday—French. Tuesday, Thursday—History, Geography.
„ 1 „ 2	Latin.
„ 2 „ 3	Arithmetic.
„ 3 „ 4	Latin.

FOURTH CLASS.

From 10 to 11	Latin.
„ 11 „ 12	French.
„ 12 „ 1	Monday, Wednesday, Friday—Writing. Tuesday, Thursday—English.
„ 1 „ 2	Monday, Wednesday, Friday—Latin. Tuesday, Thursday—Geometry.
„ 2 „ 3	Greek or English.
„ 3 „ 4	Arithmetic.

FIFTH CLASS.

From 10 to 11	French and German.
„ 11 „ 12	Latin.
„ 12 „ 1	Monday, Wednesday, Friday—Writing. Tuesday, Thursday—English.
„ 1 „ 2	Monday, Wednesday, Friday—Geometry. Tuesday, Thursday—Ancient History, Geography, Latin Composition.
„ 2 „ 3	Greek.
„ 3 „ 4	Arithmetic.

FIFTH CLASS.

(Preparing for College.)

From 10 to 11	French and German.
„ 11 „ 12	Latin.
„ 12 „ 1	Monday, Wednesday, Friday—Writing. Tuesday, Thursday—English or Latin Composition.
„ 1 „ 2	Latin.
„ 2 „ 3	Arithmetic—Algebra.
„ 3 „ 4	Greek.

SPECIAL ENGLISH CLASSES.

FOURTH CLASS.

From 10 to 11	Arithmetic.
„ 11 „ 12	Writing.
„ 12 „ 1	Book-keeping or Arithmetic.
„ 1 „ 2	French.
„ 2 „ 3	English.
„ 3 „ 4	English.

FIFTH CLASS.

From 10 to 11	French and German.
„ 11 „ 12	Writing.
„ 12 „ 1	English.
„ 1 „ 2	Geometry and Algebra.
„ 2 „ 3	English.
„ 3 „ 4	Arithmetic.

N.B.—All the Classes have suitable intervals, varying in length according to age.

The *Academy of Edinburgh* is a proprietary school, founded in the year 1824, governed by 15 directors, and taught by a Rector, four

classical masters, one mathematical master, two masters of modern languages, and several other assistants. The following is the account of the origin and constitution of the school given by the directors in their official prospectus for the session of 1864–5. I have italicised some of the features in this prospectus which appear to me to be most deserving of attention.

"The academy is *a day school, having for its object to afford a good classical and general education for boys from* 8 *or* 10 *to* 16 *or* 17 *years of age. It originated in a desire to have a school in the New Town of Edinburgh, where a higher standard of classical instruction should be adopted than was then common in Scottish schools,* and where instruction in Classics should be systematically combined with all the other branches of study, which are essential elements in a sound and complete education. The requisite capital was raised chiefly by gentlemen resident in Edinburgh, in shares of 50*l.* each; and the present commodious building was erected in an open situation to the north of the New Town. It contains nine large and well-aired class-rooms, with ante-rooms, a library, and a hall for assembling the whole school; and it stands in the centre of a play-ground of three acres, with covered sheds for exercise in wet weather. There is also a cricket ground of nine acres, within a very short distance of the school, for the exclusive use of such of the present and former pupils as choose to pay the small annual subscription necessary to defray the expenses of the field. The academy was opened in 1824, and is calculated to accommodate above 600 pupils. The numbers have varied from 300 to 500, of late years averaging 400.

"The management is vested in 15 directors, chosen by the proprietors or shareholders from their own body. The directors have the appointment of a rector, four classical masters, and masters for mathematics and arithmetic, English and elocution, French, German, fortification and civil engineering, drawing, writing, and book-keeping. The directors are in constant communication with the rector as to all the arrangements of the school, and distribute the prizes. *It is the duty of the rector to direct the practical details of the teaching and to exercise constant superintendence over all the classes of both schools, as well as to instruct those under his own immediate care.*

"*The regular curriculum is a seven years' course of study*; but boys are admitted for any portion of that time. *A boy commencing his school education at the academy enters the first or junior class, and is taught by the same classical master for four years, during which time he belongs to the first, second, third, and fourth classes in succession. At the commencement of the fifth year he comes to a greater or less degree under the immediate tuition of the rector,* assisted, in the classical school, by the same master under whom he has spent the first four years, and he continues under the rector and that master during the sixth and seventh years of the course.

"In the three junior classes all the boys in each class are instructed together in the various branches. But *for the fourth and subsequent years of the curriculum the school is separated into two divisions.* One of these, 'the classical school,' is adapted for those boys who are destined for the learned professions, or for whom, on other grounds, a thorough training in the ancient languages is required. The other, 'the modern school,' is intended for those who are to enter into the civil or military service, engineering, or upon mercantile pursuits, where high classical attainments are not necessary. *Parents or guardians are enabled to select either of these two schools as that to which their boys are to belong,* and thus to suit their education to their abilities or future prospects. But when that choice has been made, they have not, in general, any further option as to the particular studies to be pursued, every boy being expected, unless in special circumstances, to go through the course of instruction applicable to the part of the school to which he belongs *There are certain additional classes which are recognized as voluntary. And to pupils of a more advanced age than those generally attending the academy, it is specially permitted to enrol themselves in an upper seventh class for the purpose of receiving instruction in all or any of the branches taught in the highest department of the school.* This arrangement holds out great advantages to those who intend to pursue their studies at the English universities, or are preparing for the army, Indian civil service, or civil engineering.

"The school hours are from 9 a.m. to 3 p.m. on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays, throughout the session. In the classical school, three hours and a half are every day devoted to Greek and Latin, history, and geography, and two hours to English and elocution, mathematics, writing, French, German, &c, while in the modern school, one hour is devoted to Latin and ancient history, and four hours and a half to English and elocution, geography, mathematics, book-keeping, French, German, &c.; three or two intervals of a quarter of an hour each being allowed for play to all classes in the school, according to their age.

"The range of instruction during the seven years is extensive and varied. For its details reference is made to the tabular view subjoined. *In the first two years the elements of Latin and French are acquired, and in the third the elements of Greek.* Cæsar, Ovid, Virgil, Sallust, and Xenophon are read in the third and fourth classes. In the rector's classes of the classical school, Horace, Virgil, Cicero, Livy, Juvenal, Lucretius; Homer, Thucydides, Herodotus, Xenophon, the Greek tragedians, Aristophanes, and the Greek New Testament, are accurately and critically studied. *In the modern school the course is nearly the same, with the omission of Latin composition and Greek;* and the time spent by their contemporaries in the study of those subjects is devoted by the pupils in this part of the school to a more extended acquaintance with English literature, modern languages, and the higher mathematics. To the younger boys, the histories of England, Scotland, Rome, and Greece are taught from suitable abridgments; and in the higher classes, Greek and Roman antiquities accompany the study of the classic authors. A complete course of ancient and modern geography is added.

"*The French classes are placed under the charge of a gentleman who has spent a great part of his life in France, where he graduated in the University of Paris,* and where he afterwards for some years held a professorship of modern languages in two of the royal colleges successively.

"German is taught to all the rector's classes (in which term both the classes of the modern school are included) by a highly qualified gentleman, a native of Germany, and a graduate of the University of Berlin.

"The English language and elocution are taught in all the classes, except the sixth and seventh, by a gentleman who has already been proved to be very successful in giving to his pupils a correct knowledge of their own language. It is his duty to give to the younger classes daily exercises in spelling, writing to dictation, and recitation, as well as in physical and political geography, and to lead on the higher classes to analyse the works of Milton, Shakspeare, and other classical authors, and to the practice of English composition. In the four junior classes, the classical masters also give regular daily lessons in English grammar, spelling, and parsing. The sixth and seventh classes write essays on historical and general subjects for the rector.

"*All branches of arithmetic, the first six books of Euclid, algebra, trigonometry, and the elements of natural science are taught by a graduate and wrangler of the University of Cambridge.* Under his tuition, full opportunity is given of developing mathematical talent, and the foundation of success is laid in a very careful analysis of the elementary branches.

"*The boys assemble every morning in the hall, when the school is opened by the rector with reading a portion of the Holy Scriptures and prayer, and the classes then retire to their respective rooms.* The directors are anxious that a strict discipline should be maintained throughout, and that a thoroughly Christian character should be imparted to every portion of the school arrangements. A course of scripture history is prescribed for the younger classes and the modern school, and of the Greek Testament for the three senior classes; and in connexion with the study of the scriptures, the very interesting field of ancient history and antiquities, bearing on and illustrating the sacred writings, is systematically examined.

"It has always been the most anxious desire of the directors that every boy in every class should have equal justice done to him, and that the attention of the master should be so directed to the instruction of the class, that neither the progress of the quicker boys should be retarded, nor the less intelligent be neglected, and they have always found their views faithfully carried out by the masters.

"The school meets on the 1st of October, and continues (with the exception of a week at Christmas, and four days at Easter, and in October and April at the time appointed by the Church of Scotland for the administration of the sacrament) till towards the end of July, when a vacation of two months takes place. *The junior classes are periodically examined in writing, during the session, by graduates unconnected with the school, and the results of the examination are in the case of each pupil communicated to his parent or guardian. The senior classes are also subjected to a complete and searching examination on paper during five or six days, under the management of two examiners appointed each year from one of the English universities.* At the conclusion of the examination prizes are publicly distributed to those boys distinguished for their diligence and success in study. There are two classes of prizes; first, those decided by the result of the marking for the whole session, the salutary effect of which is felt throughout the year, and by the whole class, as every boy's place is noted each day, and an average taken at the close; and secondly, those decided by competition during the annual examination at the close of the year, or by written themes and exercises.

"The fees are payable quarterly in advance, on 1st October, 15th December, 1st March, and 15th May, and are as follows, there being no extra fees or gratuities whatever:

1st class (quarterly),	-	£2	15	0	(or yearly),	£11	0	0
2d " "	-	3	7	6	"	13	10	0
3d " "	-	3	12	6	"	14	10	0
4th " "	-	3	17	6	"	15	10	0
5th " "	-	4	5	0	"	17	0	0
6th " "	-	4	5	0	"	17	0	0
7th " "	-	4	5	0	"	17	0	0
Lower modern (quarterly)		4	5	0	"	17	0	0
Upper modern "		4	5	0	"	17	0	0

"There is a room appropriated for fencing, drill, and gymnastics, where Messrs. Roland have a class after 3 o'clock, but attendance on this is optional. There are also voluntary classes for drawing, fortification, civil and military engineering, &c., which meet on Wednesday and Friday afternoons and on Saturday mornings.

"*The rector and some of the masters receive pupils to live in their houses, and there are several respectable boarding-houses in the neighbourhood, of which a register is kept at the janitor's lodge at the academy.*

"The directors may point to the success of the pupils of the academy, not only in Scottish universities but at Oxford and Cambridge, where they are matched with the pupils of such schools as Eton, Winchester, Rugby, and Harrow, as sufficiently attesting that the classical training afforded by the academy is most thorough and systematic. On the other hand, the distinctions are not less marked which former academicians have obtained in the military and civil services, both at home and in India, and men occupying eminent positions in every sphere of life may be appealed to for the usefulness of the training which the school affords to those not destined to pursue much further an academical career.

"The directors anxiously desire to offer to the pupils such a course of education as will prepare them for whatever pursuit or profession they may intend to follow. This they hope to attain; first, by applying to all under their charge such mental discipline as will promote habits of clear thought and expression, through examination of the subject in hand, and readiness in acquiring and using knowledge; and secondly, by affording to different classes of boys the special instruction which their future prospects seem to require. For the benefit of those who are destined for the learned professions, or whose opportunities enable them to aspire to the position of highly educated gentlemen, they have maintained the classical department in full efficiency, combining, however, the classical instruction which they offer with such a measure of attention to other branches of knowledge as is fitted to train in due proportion all the mental faculties. And to those who have less time or inclination for the study of the languages of antiquity they offer systematic instruction of the highest order in those acquirements which are more directly useful in the practical walks of life, and a certain proficiency in which is now required as a condition for admission to many professions."

This school is, it will be observed, intended rather for the benefit of the upper social classes and members of the liberal professions in Edinburgh than of the middle and trading classes. It aims at being a *superior* rather than a *secondary* school, the course of study being arranged rather for success at the universities, and especially the English universities of Oxford and Cambridge, than for preparation for mercantile and trading life. It is as the rector describes it in one of his reports, "eminently a classical school;" though, like most English public schools, it has been modified by the addition of a "modern department." It will be seen from the foregoing prospectus that the academy is, in some respects, conducted in the same manner as a burgh school, but that in other respects it resembles rather an English proprietary classical school. It is in fact a classical school rather upon the English than the Scotch model, but adapted in some respects to the usages and prejudices of the Scotch people. The point in which it most resembles a burgh school is *the promotion of the scholars by years* instead of by selection. (See pages 24–28.) The rector of the academy is, like the late rector of the high school, Edinburgh, strongly opposed to this Scotch system of promotion. In several of his reports to the directors of the academy he speaks of it as a serious defect in the system of the school, and as hampering the working of the whole academy. In one of these reports he says, "In a school absolutely without endowment, and at the present "scale of payment in Scotland for a first-rate classical education, large "classes must, I fear, be looked upon as a necessary evil. But I can "see no reason why this evil should be unnecessarily aggravated by "retaining boys in the same class without the slightest reference to "their ability, industry, or attainments." In another passage he says that the opinion expressed by the rector of the High School, Edinburgh in one of his reports—"that the practice hitherto followed, of allowing "boys to advance to a higher class without any regard to their fitness, "does the greatest possible injury to the boys individually, to the "masters, and to the whole school," is *one which he has always maintained.* On page 27 of this report I have discussed very briefly some of the advantages and disadvantages of this system of *promotion by time.* I attach the highest importance to the opinions of two gentlemen so experienced in teaching and so distinguished in scholarship as the rector of the academy and late rector of the High School of Edinburgh. But I am inclined to think that in *secondary schools* (and I speak only of secondary schools), the advantages are not altogether on the side of promotion by selection. Perhaps it might not be difficult to devise for secondary schools some scheme which should combine the advantages and mitigate the defects inherent in both systems of promotion.

The following table may be compared with those in Appendices I.–VII. which give an account of the amount of work which the different classes in some of the burgh schools get through.

STUDIES OF THE DIFFERENT CLASSES, SESSION 1865–66.

First Class.—Mr. Banks, Master.

Latin.—Rudiments, to the end of Syntax Rules, with frequent revisals. Delectus, pages 1–20 (13 and 14 omitted). Grammatical Exercises, Part I.

History.—Tales of a Grandfather, History of Scotland to the Death of Charles I. Daily Exercises in Parsing, Spelling, and Etymology.

Scripture.—Genesis, 34 Chapters; St. Matthew's Gospel, 18 Chapters.

With Dr. Collier.

English.—Bryce's Readings. Elocution and Repetition of Poetry twice a week. Constable's Spelling and Dictation Book, to page 30, daily. Douglas's Grammar, to the end of Etymology.

Geography.—Anderson's,—Map of the World; specially, Europe, England, Scotland, and Ireland.

With Mr. Maclean.

Arithmetic.—Simple Rules, with Reduction of Money, Compound Addition, Subtraction, Multiplication, and Division. Tables of Weights and Measures. Colenso's Arithmetic, to page 31.

Second Class.—Mr. Weir, Master.

Latin.—Rudiments, repeatedly revised as far as the end of the Rules of Syntax. Rules of Gender from Henry's First Latin Book. Delectus, from page 22 to page 52; and the lives of Miltiades, Themistocles, Aristides, and part of the life of Hannibal. Grammatical Exercises, Part II., the whole of the large print, and the small print as far as page 150. Written Exercises thrice a week.

History.—Tales of a Grandfather; the "History of Scotland" from the death of Charles I. to the Union of the Crowns; and Gleig's "History of England" to the accession of Henry VIII.

Scripture.—Four Books of the Pentateuch, St. Mark's Gospel, and the early Chapters of St. Luke.

With Dr. Collier.

English.—Bryce's Readings from the best Authors. Reading and practice of Elocution, with Lessons on the Theory. Constable's Spelling and Dictation, to page 60, four times a week.

Geography.—Anderson's Geography,—Asia and Africa in general; specially, India, China, Palestine, Egypt, and Cape Colony; Progress of Exploration in Africa.

With Mr. Macleod.

French.—Delille's First French Grammar, Rules and 100 Exercises. Conjugation of Verbs.

With Mr. Maclean.

Arithmetic.—Addition, Subtraction, Multiplication, and Division of Simple and Compound Quantities; with the Tables of Weights and Measures; Greatest Common Measure; Least Common Multiple. Colenso's Arithmetic, to page 37.

Third Class.—Mr. Carmichael, Master.

Latin.—Rudiments revised. Rules for Quantity, learned, and applied to Hexameters and Pentameters. Cæsar de Bello Gallico, Books I. and II. Ovid's Fasti: Eton Electa, pp. 58–82. Mairs's Introduction, pp. 1–36. Grammatical Exercises, p. 60 to the end.

Greek.—Rudiments, to the end of the Irregular Verbs. The Greek Extracts, pp. 1–17 (7th Edition).

Classical Geography.—Pillans' First Steps, except Spain. Map-Drawing.

History.—Gleig's History of England, from the reign of Alfred, p. 29, to the reign of George III., p. 533.

English.—Grammar, Parsing, Analysis, Etymology, and oral Spelling.

Scripture.—Old Testament, I. Kings and II. Kings to the end of Chapter 20; New Testament, Acts of the Apostles, Chapter 13 to the end, with special reference to the Travels of St. Paul. Selected dates out of Riddell's "Scripture History."

With Dr. Collier.

ENGLISH—Bryce's Readings, Lessons on English Literature and Criticism. Morell's Grammar,—Etymology and Analysis of Sentences, with frequent revisal. Armstrong's Composition,—Part I. Frequent Exercises in Paraphrase. Essays and Exercises written in the Class. Recitations and Readings, twice a week.

GEOGRAPHY.—Anderson's Geography,—Maps of North and South America; specially, United States and Canada. Central and Western Europe; specially, the Netherlands, France, Germany, Spain, and Italy. Occasional Map-drawing in the Class.

With Mr. Williams.

ARITHMETIC.—Revisal of the Elementary Rules, Reduction, Weights and Measures, Simple and Compound Proportion, and Practice.

With Mr. Macleod.

FRENCH.—Delille's First French Grammar, fr[illegible] Lesson 100 to the end. First Rules of Constanseau's Grammar and Con[illegible]ugation of Verbs. Lamé Fleury's Histoire de France, to page 67.

FOURTH CLASS.—Dr. CLYDE, Master.

LATIN.—Rudiments revised. Eton Electa, Ovid's Metam, pp. 28–101. Cæsar de Bell. Gall., Books III. IV. Virgil, Æneid, III. IV. Mair's Introduction, finished from p. 170. Arnold's Introduction to Latin Prose Composition, Part I. to Exercise 60. Voluntary Written Exercises in Latin Prose Composition once a week.

GREEK.—Rudiments finished from verbs in $\mu\iota$, and revised. Greek Extracts, finished from page 14.

ENGLISH.—Peculiarities of the parts of speech, analysis, etymology.

ANCIENT GEOGRAPHY.—Pillans' First Steps in Classical Geography, the whole revised.

SCRIPTURE.—Select chapters in Numbers and Deuteronomy, Judges, I. and II. Samuel, and the Acts of the Apostles.

HISTORY.—Liddell's Rome, to the end of the Second Punic War. British History revised by means of selected dates.

With Dr. Collier.

ENGLISH.—Macbeth and Merchant of Venice—Critical Examination, with Exercises on Elocution. Dictation—Essays written at home every fortnight. Spalding's History of English Literature. Hughes's Physical Geography, to the end of "Ocean."

MODERN SIDE.—*Same English as* MODERN FIFTH.

With Mr. Macleod.

FRENCH.—Delille's Grammar, to page 211, with all the Exercises. Frequent Conjugation of Verbs, Regular and Irregular. Lamé Fleury's Histoire de France, from page 60 to page 160. Fénélon, Télémaque, Six First Books.

With Mr. Williams.

ARITHMETIC.—Simple and Compound Proportion, Practice, Vulgar Fractions, and, by the more advanced portion of the Class, Decimal Fractions and Interest.

GEOMETRY.—The First Book of Euclid to Proposition 32.

Modern—With Mr. Williams.

ALGEBRA.—The Simple Rules, the use of Brackets, and easy Simple Equations; Arithmetic; Geometry—the same as Classical Side.

FIFTH CLASS.—THE RECTOR; Mr. BANKS, Assistant.

With the Rector.

LATIN.—Ovid, Fasti, Book III. Virgil, Georgics III. and IV. Horace, Odes, Book IV., and Carmen Seculare.

GREEK.—New Testament, St. John's Gospel to chap. xiii. Homer, Iliad, Books I. II. and III. to v. 300. Lucian, Contemplantes and Somnium.

Greek Testament Repetition.

With Mr. Banks.

LATIN.—Horace, Odes, Books I. II. and III., except a few Odes. Livy, Book XXI. to chapter 35. Arnold's Latin Prose Composition, finished. Penrose's Latin Elegiacs, 35 pages. Many Odes of Horace committed to memory. Smith's Smaller Rome, from second Punic War to the end. Weekly Exercises in Latin Prose Composition.

GREEK.—Xenophon, Anabasis, Book I., Chap. 8, to the end, and Book II. Euripides, Alcestis, to verse 860. Arnold's Greek Prose Composition to 38th Exercise.

ANCIENT HISTORY.—Smith's Smaller Greece, from the beginning to the commencement of the Peloponnesian War.

With Dr. Collier.

ENGLISH.—Merchant of Venice, Milton's Paradise Lost, Book I. Essays in Class and at home.

With Mr. Macleod.

FRENCH.—Delille's Grammar, from page 156 to page 242. Conjugation of Irregular Verbs. Weekly Exercises. Racine, Athalie and Esther. Fénélon, Télémaque, Books IV. V. VI.

GERMAN.—Ahn's Exercises, First Part. Declension of Nouns and Adjectives. Conjugation of Verbs. Niebuhr's Heroen Geschichten, 12 Chapters.

With Mr. Williams.

ARITHMETIC.—Revisal of the Work done in the Fourth Class, Decimals, Compound Proportion, Interest, &c.

GEOMETRY.—The Second and Third Books of Euclid, with revisal of First Book, and, by a few of the most advanced pupils, the Fourth Book.

MODERN FIFTH.

With Dr. Clyde.

LATIN.—Ovid, Fasti, III. Virgil, Georgics III. and IV. Horace, Odes, Book IV., and Carmen Seculare.

ENGLISH.—Peculiarities of the parts of speech, parsing, analysis, etymology, oral spelling.

MODERN HISTORY.—Gleig's History of England.

ANCIENT HISTORY.—Smith's Smaller Rome.

MODERN GEOGRAPHY.—Anderson's Geography.

ANCIENT GEOGRAPHY.—Pillan's First Steps.

SCRIPTURE.—Riddell's Scripture History.

COMPOSITION.—A weekly English theme on miscellaneous subjects.

With Mr Macleod.—Same as Classical side.

With Dr. Collier.

ENGLISH.—Shakspere's Julius Cæsar and Merchant of Venice. Critical Examination, meaning of words and phrases, exercises in analysis, paraphrase, prosody, &c. Spalding's History of English Literature. Hughes's Physical Geography, to page . Extempore Essays and official letters written regularly in the Class. Essays written at home once a fortnight.

With Mr. Maclean.

The Theory and Practice of Book-keeping.

With Mr. Williams.

GEOMETRY.—Same as Classical side.

ALGEBRA.—The Simple Rules, Simple Equations, Evolution, and, by the more advanced portion of the Class, Quadratic Equations. Arithmetic.

SIXTH CLASS.—THE RECTOR; Mr. WEIR, Assistant.

With the Rector.

LATIN.—Terence, Andria. Horace, Odes, Book IV., and Epodes. Virgil, Georgics I. II. IV.

GREEK.—New Testament, St. Mark's Gospel, and St. John's, chap. xviii. to end. Homer, Iliad, Books IV. V. VI. v. 130, to end. Herodotus, Book III. Historical Essays and Translations from Greek and Latin Authors. Greek History, to end of Persian War. Latin Verse Repetition, and Composition.

With Mr. Weir.

LATIN.—Livy, Book I., chap. 30 to the end; Book II., chap. 20. Horace, Satires, Book I., Sat. I. III. IV. V. VI. VII. IX. X.; Book II, Sat. I. II. VI. Epistles, Book I., Ep. I.

GREEK.—Homer, Iliad, Book I. Sophocles, Œdipus Tyrannus. Arnold's Prose Composition, from Exercise XXXII. to LX. Voluntary Exercises out of Beatson's Greek Iambic Verse Composition. Daily Exercises in Greek or Latin Composition, Prose or Verse.

With Mr. Williams.

ARITHMETIC.—Revised.

GEOMETRY.—The Second and Third Books of Euclid, with revisal of the First Book, and, by a few of the most advanced pupils, the Fourth Book.

ALGEBRA.—To the end of Simple Equations of one and two Unknown Quantities in Colenso's.

With Mr. Macleod.

FRENCH.—Delille's Grammar, from page 216 to the end. Weekly Exercises; frequent Dictation. La Fontaine, Fables I. II. III. IV. V. Fénélon, Télémaque, Books III. IV. V.

GERMAN.—Ahn's Grammar, the whole of Part II. Conjugation of Irregular Verbs and Exercises. Schiller, Die Jungfrau von Orleans, Acts I. II. Niebuhr, Heroen Geschichten, continued.

MODERN SIXTH.

LATIN.—The same as the Classical side, both with the Rector and Mr. Weir, with English Composition and Translation instead of Latin Composition.

With Dr. Collier.

ENGLISH.—Milton's Paradise Lost, Books I. and II. Shakspere, Richard III, specially, Analysis of Sentences. Hughes's Physical Geography. Spalding's History of English Literature. Essays written once a week in Class, and once a fortnight at home.

With Mr. Williams.

GEOMETRY.—The same as Classical side. An extensive course of Arithmetic. Algebra over Quadratic Equations. The use of Logarithms.

With Mr. Maclean.

The Theory and Practice of Book-keeping.

SEVENTH CLASS.—THE RECTOR; Mr. CARMICHAEL, Assistant.

With the Rector.

LATIN.—Terence, Adelphi. Lucretius, Book I. to ver. 580; Book III. ver. 418 to end. Virgil, Georgic IV. Persius, Satires III. and V. Juvenal, Satires, I. III. IV. V. VII. VIII. X.

GREEK.—New Testament, Acts of the Apostles. Homer, Odyssey, Books XI. XIII. XIV. Æschylus, Prometheus Vinctus. Aristophanes, The Wasps. Plato, Apology of Socrates.

Exercises in Latin Verse.

Essays on Greek and Roman History, and Translations from Greek and Latin Authors.

With Mr. Carmichael.

LATIN.—Horace, Satires, Book II., beginning with the third. Virgil, Æneid, Books VI. and IV. Wilkins' Prose Composition. Wilkins' Latin Lyrics.

GREEK.—Plato, Crito. Thucydides, Book I. Arnold's Prose Composition, Part I. Beatson's Exercises in Greek Iambic Verse, to p. 62.

Daily Written Exercises in Greek and Latin Composition, Prose and Verse.

With Mr. Williams.

ARITHMETIC.—Fourth and Sixth Books of Euclid, with revisal of the First Three Books. Algebra over Quadratic Equations and Progressions. The Elements of Plane Trigonometry, and the use of Logarithms.

With Mr. Macleod.

FRENCH.—Lhomond's Grammar, the whole. Weekly Exercises; frequent Dictation. Molière, L'Avare. Corneille, Cinna, Acts I. II. III.

GERMAN.—Tiark's German Grammar, with Exercises. Schiller, Don Carlos, Acts I. II. and III. Voss, Homer's Iliad, Books I. and XVI.

One feature which distinguishes the academy from the burgh schools of Scotland is the written examinations by graduates of the English universities. For some years it has been the custom for the rector's classes to be examined in this manner, and latterly this written examination by persons not connected with the school has been extended to the junior classes also. This is a feature worthy of remark, as I believe that this school stands almost alone among all the public schools of Scotland in being thus rigidly and systematically examined. Most of the burgh schools have what they call their examinations or "exhibitions" at the close of the session; but these are merely oral examinations, and serve at best only to display the tact of the teachers in handling the boys, and to give to former scholars and the patrons and friends of the school an opportunity of manifesting their interest in the work of the school. As a means of really ascertaining the attainments of scholars and of judging whether the school is satisfactorily taught such "exhibitions" are at the present day quite inadequate. In fact they may in many cases do more harm than good. Were I writing a report for the Scotch people on their burgh schools I should dwell more largely and more forcibly on this *want of systematic written examination by independent examiners*. Merely oral questionings of scholars, whether by the masters, by casual strangers, or even by professional examiners, are in the present day, with the numerous and difficult subjects which constitute the curriculum of a good secondary or superior school, perfectly inadequate tests of the character of such a school. Even in a primary school, with its comparatively narrow curriculum, such a test would be considered unsatisfactory in England. How much more in such a burgh school as that of Ayr or Glasgow?

The number of scholars in Edinburgh Academy at the end of the session, July 1866, was 393. They were divided into the following classes: Class VII., 9 boys; VI., 31; V., 48; these constitute the rector's classes. Class IV., 56; III., 78; II., 88; I., 83. The following time-table shows the proposed arrangement of hours and classes for the session, 1866–7.

FIRST CLASS.—Dr. CLYDE.

From 9	to 10	Every day	-	With Classical Master.
„ 10	to 10.45	Every day	-	With Classical Master.
„ 11	to 12	Every day	-	With Classical Master, English.
„ 12	to 12.45	Mon., Wed., Friday	-	With English Master.
		Tuesday, Thursday	-	With French Master.
„ 1.15	to 2	Every day	-	Writing and Arithmetic.
„ 2	to 3	Every day	-	Writing and Arithmetic.

SECOND CLASS.—Mr. BANKS.

From 9	to 10	Every day	With Classical Master.
„ 10	to 10.45	Every day	With Classical Master.
„ 11	to 12	Every day	With Classical Master.
„ 12	to 12.45	Monday, Friday	With French Master.
		Tues., Wed., Thur.	With Classical Master, English.
„ 1.15	to 2	Every day	With English Master.
„ 2	to 3	Every day	Writing and Arithmetic.

THIRD CLASS—Mr. WEIR.

From 9	to 10	Every day	With Classical Master.
„ 10	to 11	Every day	With Classical Master.
„ 11.15	to 12	Every day	Mathematics and Arithmetic.
„ 12	to 12.45	Mon., Tues., Thur., Fri.	Writing.
		Wednesday	With French Master.
„ 1.15	to 2	Every day	With Classical Master, English
„ 2	to 3	Mond., Wed., Fri.	With English Master.
		Tues., Thurs.	With French Master.

FOURTH CLASS.—Mr. CARMICHAEL.

From 9	to 10	Every day	With Classical Master, English
„ 10	to 11	Monday, Wed., Friday	Writing.
		Tuesday, Thursday	With French Master.
„ 11.15	to 12	Every day	With Classical Master.
„ 12	to 1	Every day	With Classical Master.
„ 1.15	to 2	Every day	Mathematics.
„ 2	to 3	Monday, Wed., Friday	With French Master.
		Tuesday, Thursday	With English Master.

RECTOR'S CLASSES.

CLASSICAL SCHOOL.

FIFTH CLASS.

From 9	to 10	Mon., Wed., Friday	With French Master.
		Tues., Thurs.	With German Master.
„ 10	to 10.45	Mon., Wed., Friday	With English Master.
		Tues., Thurs.	Writing.
„ 11	to 12	Every day	With Rector.
„ 12.15	to 1	Every day	With First Class Master.
„ 1	to 2	Every day	With First Class Master.
„ 2	to 3	Every day	Mathematics.

SIXTH CLASS.

From 9	to 10	Every day	With Rector.
„ 10	to 10.45	Every day	With Rector.
„ 11	to 12	Mond., Wed., Friday	With French Master.
		Tues., Thurs.	With German Master.
„ 12	to 1	Every day	Mathematics.
„ 1.15	to 2	Every day	With Second Class Master.
„ 2	to 3	Every day	With Second Class Master.

SEVENTH CLASS.

From 9	to 10	Mon., Wed., Friday	With German Master.
		Tues., Thurs.	With French Master.
„ 10	to 11	Every day	Mathematics.
„ 11.15	to 12	Every day	With Third Class Master.
„ 12	to 1	Every day	With Third Class Master.
„ 1.15	to 2	Every day	With Rector.
„ 2	to 3	Every day	With Rector.

Modern School.

Lower Modern Class.

From 9 to 10	Mon., Wed., Friday	With English Master.
	Tues., Thurs.	Writing.
„ 10 to 11	Every day	Classics (with Fourth Class Master).
„ 11.15 to 12	Mon., Wed., Friday	With German Master.
	Tues., Thurs.	With French Master.
„ 12 to 1	Monday	With Rector.
	Tues., Thurs.	With English Master.
	Wed., Friday	Book-keeping.
„ 1.15 to 2	Mon., Thurs.	Mathematics.
	Wed., Friday	With French Master.
	Tuesday	History (with Fourth Class Master).
„ 2 to 3	Every day	With Second Mathematical Master.

Upper Modern Class.

From 9 to 10	Every day	Mathematics.
„ 10 to 11	Every day	With German Master.
„ 11.15 to 12	Every day	With English Master.
„ 12 to 1	Monday	With Rector.
	Tues., Thurs.	With Second Mathematical Master.
	Wed., Friday	Book-keeping.
„ 1.15 to 2	Mon., Tues., Thurs.	With French Master.
	Wednesday	With Second Mathematical Master.
	Friday	History (with Fourth Class Master).
„ 2 to 3	Every day	Classics (with Fourth Class Master).

The rector was good enough to permit me to inspect the buildings and premises of the academy, and to listen to the teaching of the different classes. It would have been impossible for me to examine the school without applying to the Commissioners for an extension of the time allowed me for my visit to Scotland (see page 1–2), and as this is rather a superior than a secondary school I did not consider it necessary to do this. I did not therefore ask the permission of the directors to examine.

The buildings of the academy are very fair. The class-rooms are airy and cheerful; large, but not excessively so. There are no fives or racquet courts, and no grass playground, but a field near the school is hired for cricket. The only real defect which I noticed in the class-rooms is a want of desks, similar to that prevailing in the High School. All the oral work that I heard was very well done with the rector, and fairly well with the classical assistants. The standard of scholarship is evidently higher in the upper part of the school than in the upper part of any burgh school that I visited. The teaching of the rector in Terence in the sixth and in Homer in the seventh classes, and the answering of the boys, reminded me for the first time of the sixth-form work in one of our best public schools. I drew from what I saw here the conclusion that *the superiority of a highly cultivated English master from one of the English universities over the ordinary Scotch masters is as evident for high classical work as the superiority of the latter over our ordinary English pass graduates and other middle schoolmasters in England is for the work of secondary schools.*

The school has greatly distinguished itself of late years both at Oxford and Cambridge, and it has also had great success in the Scotch universities, and in the Indian Civil Service, military, and other competitive examinations. The reports of the examiners of the rector's classes for the last two years were shown to me; they were most satisfactory. Some of the papers worked by the boys of these classes at the examinations in July 1866 were also kindly sent to me by the rector. Considering the age of the boys they were really remarkably good, and seemed to imply that the upper part of the school attains a very satisfactory standard of scholarship and general information.

Dollar Institution.

This is one of the most important endowed schools of Scotland. It was founded in 1818, and incorporated by Act of Parliament, under an extended trust, in 1847. One John Mac Nabb, a native of the parish of Dollar, Clackmannanshire, having accumulated a large fortune, directed one half of that fortune to be vested in the public funds, or some such security, in order that it might yield an annual income for the endowment "of a charity or school for the poor of the parish of Dollar." This fund he bequeathed to the ministers and elders of the said parish for the time being, in whom, by a decretal order of the Court of Chancery (June 1818), the legacy was vested as trustees. Owing to the very general terms of the legacy there was much dispute as to the exact way in which the funds should be applied; but eventually the trustees, fortifying themselves at each step with the opinion of eminent Scotch counsel, came to the following (among other) conclusions as to the mode in which the testator's legacy should be applied.

(*a.*) Almshouses or a hospital should *not* be built, nor should doles or other eleemosynary gifts be established, but *the whole bequest should be applied to the furtherance of education;* for this purpose an institution should be founded in Dollar.

(*b.*) The *poor of the parish of Dollar* should be entitled to education in the institution *gratis;* but those only should be considered as "poor of the parish," and as therefore entitled to a gratuitous education, who *come within the legal description of the poor,* and, as such, are recognized by the Kirk Session as fit objects of parochial charity. The Lord Advocate on this subject gave his opinion thus:—"I incline to be of opinion that the *only* "*persons* entitled to claim the benefit of the charity under "Mr. Mac Nabb's will are those whose parents, by law, have "a right *to be upon the poor's roll* of the parish of Dollar. "They, I should think, would be held to be entitled to claim "education at the different classes *gratis.*"

(*c.*) That this institution for the education of the poor of Dollar should be thrown open to others, *whether members of the parish or not, upon payment of adequate fees,* to be ascertained and fixed by the trustees.

(*d.*) That the trustees should have power to extend the assistance to *poor scholars* beyond the mere gratuitous instruction in the classes of the institution, so as to afford assistance to those who are eminently deserving during the period of their attendance at the classes (*i.e.*, by *maintenance exhibitions*), to assist those who are industrious and well-behaved *in prosecuting mechanical professions,* and, in case of promising genius and talents, *to enable them to complete their studies at the universities.*

(*e.*) That the institution should afford not only elementary education suitable to the poor, but also should include a great academy or seminary of education in which should be established teachers of the subjects of liberal and useful education.

These are the five main principles upon which the trustees of Dollar Institution acted in constituting that establishment. I beg to request the Commissioners' especial attention to them, because they all appear to me to be sound and good as far as they go, and afford a strong contrast with the principles upon which charities are generally administered in England. From the establishment of these five principles the following (among other) results have followed, to which again I beg to direct the Commissioners' attention. They all represent points upon which our English educational charities more or less go wrong :

(1.) *The school is open to girls as well as boys.*

(2.) *There is a very considerable mixture of classes in the school.*

(3.) *There is no compulsory curriculum.* The classes are severally open to all paying scholars on payment of certain fees, graduated according to means of parents. *A curriculum is, however, recommended.*

(4.) *The school is a day school,* but the masters are not forbidden to take boarders. Several of them do so ; and there are also dames' houses in the neighbourhood of the school where both girls and boys are boarded.

(5.) The masters are paid certain fixed minimum salaries, and the amount of increase upon those salaries depends, in the case of each master, upon the number of *scholars of all grades who may be attending the classes taught by him.* The fees are all paid to the treasurer of the institution, and the rate of augmentation of salary payable to each master is calculated by him according to a system arranged by the trustees.

(6.) Children are required on admission to be able to read easy English lessons. Two preparatory schools are kept in the neighbourhood of the institution by young ladies.

From the numerous and minute papers which the principal kindly supplied to me in answer to my inquiries, and which I do not think it necessary to give here in full, I extract the following noteworthy points :—

The school is *mainly* a middle class school, but there is a considerable mixture of social grades. The classes which are most numerously attended, and which therefore represent the most important work of the institution, are—

(1.) English, (including reading, writing, book-keeping, geography, grammar, and history).

(2.) Arithmetic and practical mathematics.

(3.) Latin (entirely by boys).

(4.) Modern languages (chiefly by girls).

(5.) Drawing.

Girls do not pay much attention to mathematics or Latin, and the attendance of boys at Greek is very small. These facts are interesting as showing the course taken by scholars of the middle classes when left to choose their own subjects. At the time of my visit the number of scholars on the roll was, boys 320, girls 211, total 531. As to the ordinary attendance, I was informed that in the higher classes about 5 per cent. of the number on the roll are absent at any given time, while in the lower classes about 10 per cent. are generally absent. There are four scales or grades of payment of fees, graduated according to the

means of parents, and the number of scholars in each grade is as follows:—

Free scholars	114 boys	95 girls
First (lowest) grade of paying scholars	9 „	6 „
Second „ „	43 „	43 „
Third „ „	154 „	67 „

The ages of the pupils in the junior department of the school are from seven to 10 years, in the senior from 11 to 18 years. Many of the free scholars follow the pursuits of their parents (all of the labouring classes), but not a few become, as the result of taste and scholastic application, teachers, clerks in offices, surveyors, or engineers. Most of the paying scholars are intended for some branch of mercantile business, and only a small minority pass into professional life. A considerable proportion of the pupils are the children of widow ladies from India, and eventually go abroad. Some pupils walk five miles to school daily, but few come beyond a distance of three miles. The precise number of pupils entered to the different subjects is as follows:—

Classics	boys 102	girls 0
Arithmetic	„ 272	„ 218
Mathematics	„ 60	„ 0
Engineering and practical mathematics	„ 23	„ 0
English	„ 270	„ 201
French	„ 65	„ 98
German	„ 17	„ 38
Drawing	„ 86	„ 80
Chemistry and natural science	„ 35	„ 0

The course in Latin theoretically lasts six years, but it is practically limited to five years. This is because the Scotch universities have no admission examination, and therefore boys who have entered the fifth year at school can proceed to the universities and begin at once the course required for the ministry. Greek is begun at Dollar in the third year of the Latin course, so that there are theoretically four years of it. But for the same cause Greek is practically limited to three years. Mathematics are the strongest point of the institution, and they are taught in a very practical manner with special regard to the profession of engineering, the construction of bridges, &c. The institution has been remarkably successful in preparing candidates for civil engineering appointments in India.

The High School, Inverness.

There is at Inverness a large school which was formerly called the "Free Church Institution," but which is now styled "The High School." Being at Inverness for the purpose of inspecting and examining the royal academy or burgh school of that town I made some inquiries also concerning the "High School."

This school was built in 1849, *with the aid of a grant from the Committee of Council on Education*, and it still receives *annual grants* under the old code from that department. It is partly an elementary, but mainly a secondary or middle-class school. It is in connexion with, and under the management of three free churches in Inverness, and is governed by five representatives (one minister and four elders) out of each congregation. Pupils of all denominations are admitted, and the instruction is in no degree denominational. The school was originated under the title of the "Free Church Institution" in 1844. The buildings were completed in 1849, and the total cost for them was 1,892*l.* 4*s.* 6*d.*, towards which the Education Department gave 626*l.* The

balance was raised by voluntary contributions. The building is free of debt, except a few current accounts. In 1852 improved fittings were provided at a cost of 32*l.* 7*s.* 3*d.*, towards which a grant of 23*l.* 7*s.* 8*d.* was made by the Education Department. The annual grant for the year 1865–6 amounted to 62*l.*, and was thus composed. Augmentation to head master 25*l.*, do. to second master 23*l.*, do. to mistress 14*l.*

The school has no endowment, but subscriptions are raised for its support by the managers. The following is a statement of the income and expenditure as returned to the education department for the year ending September 30th, 1865.

—	Voluntary Contributions.	School Pence.	Last Year's Grant.	Other Sources.	Total.
Income from -	£ s. d. 74 17 6	£ s. d. 240 0 5	£ s. d. 75 13 4	£ 35	£ s. d. 425 11 3

—	Salary of Teacher.	Salary of Assistants.	Fuel, &c.	Repairs.	Other Expenses.	Total.
Expenditure in	£ s. d. 140 11 3	£ s. d. 222 0 0	£ s. d. 24 15 0	£ s. d. 3 5 0	£ 35	£ s. d. 425 11 3

The following is the scale of fees:

	Per annum. £	s.	d.
English (including reading, writing, dictation, arithmetic, geography, history, and grammar - - -	1	10	0
Latin - - - - - - -	1	0	0
Greek - - - - - - -	1	0	0
French - - - - - - -	1	0	0
German - - - - - - -	1	10	0
Drawing - - - - from 1*l.* 0*s.* 0*d.* to	1	10	0
Plain and fancy needlework (partly free, partly) - -	1	0	0
Mathematics - - - - - -	1	0	0
Piano - - - - - - -	4	4	0
Singing - - - - - - -	0	8	0

The number of scholars on the roll at the date of my visit was 356, of which about two-thirds were boys and one-third girls. There were about 325 scholars in ordinary attendance. Scholars are not admitted under five years of age; there is no age of superannuation; and I found boys of 20 and girls of 17 and 18 years in the school. The average duration of school life here is about eight or nine years. The scholars pass into shops, writers' offices, banks, &c., and many of them then make their way into England.

The 356 scholars on the roll were assigned to the following social classes in about the following proportions:

1.	Children of landed proprietors - - - -	0
2.	„ professional men - - - -	26
3.	„ large merchants, or wholesale producers - -	0
4.	„ large shopkeepers, farmers, superior employés -	100
5.	„ small tradesmen, clerks, inferior employés -	150
6.	„ artisans, labourers, &c. - - - -	80
	Total	356

In fact the class of scholars is much the same as at the academy, and there is a considerable interchange of pupils. The following Table will

also illustrate this question. It gives the occupation of parent, and distance from school, of the last 20 scholars admitted on to the roll.

No.	Occupation of parent.	Distance from school.
1.	Master joiner	200 yards.
2.	Barber	400 „
3.	Journeyman engraver	400 „
4.	Ditto	400 „
5.	Private fortune	One mile.
6.	Farmer (but lodges in town)	Quarter of a mile.
7.	Clerk in an office in London (lodges in town)	Ditto.
8.	Unknown	300 yards.
9.	Game dealer	Ditto.
10.	Farmer	Two miles.
11.	Shoemaker	500 yards.
12.	Working mason (comes by rail)	6 miles.
13.	Farmer	3 miles.
14.	Ditto	Ditto.
15.	Ditto	Ditto.
16.	Ditto	Ditto.
17.	Captain of a coasting vessel	One mile.
18.	Farmer (lodges in town)	Half a mile.
19.	Ditto	Ditto.
20.	Dead (lodges in town)	Half a mile.

The case of the scholar numbered 20 is remarkable. He is a young man whose regular business is that of a gamekeeper on an estate some 30 miles distant from Inverness. He had saved a little money, and had given up his employment, for a time at any rate, in order to come into Inverness and study. I inquired whether he wished to go into the ministry, or to proceed to the university for any other purpose, but was told that he had expressed no such intention, and that, as far as could be ascertained, his only object was self-improvement. He sat in the ordinary classes with boys and girls of 11 and 12 years old, without appearing at all ashamed of his position. I was told of several other cases almost equally interesting, which seemed to imply that there is a real thirst for knowledge among the country people of this part of Scotland. One boy comes by rail to the school over 30 miles every day. Others walk every day over five miles to the school, and return the same distance in the evening, and yet *are most regular in their attendance.* Two girls walk more than four miles, from Culloden, to the school, and return every day; and they had only been absent *one day* during the winter of 1865–6. Lads come in from the highland glens all round, and live upon an incredibly small sum, receiving oatmeal and other field and garden produce from home, so as to be able to lodge in the town and attend this school; and many of this class are sent up every year to the University of Aberdeen and the other Scotch universities.

There is no compulsory curriculum. The numbers learning the different subjects were said to be as follows:

English	320	German	6
Latin	72	Mathematics	26
Greek	12	Drawing	43
French	40		

But all who are able to write receive one lesson per week in drawing *gratis.* Of those learning Latin five were girls. No girls were learning Greek or Euclid; but one was learning algebra, and was said to be an excellent arithmetician.

The staff of the school consists of the following officials :

Classics and modern languages -	The rector. A certificated teacher.
Classical assistant to the rector -	A certificated teacher, student in Aberdeen University.
English - - - -	A certificated teacher, trained in the Free Church Normal School.
Arithmetic and mathematics -	Graduate of London University.
Writing and book-keeping -	A trained and certificated teacher.
Drawing - - - -	The master of the government school of art in Inverness. Certificated.
Junior classes, and needlework -	A trained and certificated mistress.

The buildings of this school consist of four schoolrooms, each having a classroom attached to it. The buildings are conveniently approached on two sides, and have good separate playgrounds and offices for boys and girls. The supply of maps and apparatus is good; and I noticed especially the furniture of the drawing class-room, which is remarkably well supplied with apparatus, models, &c., from South Kensington. The advantages of being in connexion with the Art Department at South Kensington, and of having a duly trained teacher and a regular course of instruction in drawing were very obvious.

This school, being in receipt of annual grants from the Committee of Council on Education, is regularly inspected in or about October of each year by the Government Inspector of Elementary Schools. The following is an official copy of his report for the year ending Sept. 30, 1865, to the Lords of the Committee of Council on Education :—"This "institution continues to be conducted with order, vigour, and "efficiency by the able and experienced rector, who is heartily assisted "in his well-directed labours by the other teachers. The staff now "includes a well-qualified drawing-master, and I saw a number of very "promising specimens of free-hand."

The Sharp Institution, Perth.

There is in Methven Street, Perth, a school of the above name. It was founded in (or about) 1860 by the trustees of the late Mr. J. Sharp, baker, of Perth. The cost of the school buildings was, including the site, 8,659*l.* The annual endowment is the interest of 4,500*l.* There are no contributions. The school has four departments, industrial, infant, junior, and senior. The industrial department provides instruction in needlework for girls. It was originally intended that washing and other domestic employments should be taught here, but this has not been done. *The school is open to both boys and girls. There is a compulsory curriculum*, which every scholar of the institution must follow. It consists of instruction in English (including reading, writing, dictation, arithmetic, geography, history, and grammar), vocal music (tonic sol-fa), and drawing. Besides these, Latin and mathematics are taught, but these subjects are optional, are regarded and charged as extras, and taught at separate hours. But they are taught only to scholars going through the regular curriculum.

The fees paid by the scholars for the regular curriculum are as follows : —In the infant department, 16*s.* a year; junior, 30*s.* a year; senior, 44*s.* a year. When three or more from a family attend, a deduction of one-sixth of the gross amount is allowed. These fees include the use of pens and ink, slates, &c., and the charges for fuel, janitor, &c. But each pupil purchases his own text-books and paper for writing. Only three hours a week are allowed to Latin, and two to mathematics; and the extra

fee charged for these subjects is, Latin, 8*s.* a year, mathematics, 4*s.* a year.

The number of scholars on the roll in the different departments was, at the date of my visit, as follows:—

	Infants.	Junior.	Senior.	Total.
Boys	56	58	81	195
Girls	55	50	54	159
Total	111	108	135	354

Of these about 177 boys and 140 girls (317) were in ordinary attendance. Of the whole number on the roll about

138 were the children of artisans, labourers, &c.
216 were the children of retail merchants, clerks, &c.

The school is therefore mainly a secondary school, but has a very considerable primary element in it. 30 boys (no girls) were learning Latin, and 12 boys (no girls) mathematics.

The following tables also illustrate this question. They show a most singular mixture, as regards both the social class and the age of the pupils:—

Last 20 Entries on Roll (Boys and Girls).

Number.	Sex.	Age at Entry.	Occupation of Parent.	Distance from School.
1	Boy	19 yrs. 2 mths.	Carrier	9 miles.
2	Girl	4 „ 9 „	Draper	400 yards.
3	Boy	11 „ 5 „	Fireman	600 „
4	„	6 „ 6 „	Clerk of works	3 miles.
5	Girl	4 „ 5 „	Tailor	150 yards.
6	„	7 „ 5 „	Custom House officer	600 „
7	„	5 „ 0 „		
8	„	5 „ 0 „	Gardener	3 miles.
9	Boy	4 „ 6 „	Brewer	250 yards.
10	„	11 „ 5 „	Joiner	300 „
11	„	4 „ 0 „	Fish curer	300 „
12	„	11 „ 5 „	Blacksmith	200 „
13	„	4 „ 10 „	Traveller	250 „
14	Girl	9 „ 5 „	Hotel keeper	350 „
15	„	14 „ 2 „	Widow	350 „
16	Boy	15 „ 8 „	Clergyman	8 miles.
17	„	8 „ 3 „	Farmer	9 „
18	„	5 „ 3 „	Widow	150 yards.
19	Girl	6 „ 0 „	Fishmonger	160 „
20	Boy	6 „ 9 „	Prison chaplain	150 „

LAST 20 REMOVALS FROM SCHOOL (Boys and Girls).

Number.	Sex.	Age at Removal.	Length of Stay.	Occupation of Parent.
1	Boy	13 yrs. 5 mths.	0 yrs. 8 mths.	Lessee, Pitkeathly Wells.
2	„	13 „ 11 „	3 „ 9 „	Engineer.
3	„	17 „ 6 „	4 „ 8 „	Farmer.
4	„	15 „ 10 „	4 „ 4 „	Toll-bar keeper.
5	„	13 „ 0 „	4 „ 6 „	Clerk.
6	„	14 „ 7 „	4 „ 6 „	—
7	Girl	9 „ 3 „	2 „ 7 „	—
8	Boy	15 „ 5 „	5 „ 7 „	Spirit merchant.
9	„	13 „ 5 „	4 „ 5 „	Shipmaster.
10	Girl	14 „ 1 „	2 „ 8 „	Farmer.
11	Boy	11 „ 9 „	5 „ 0 „	—
12	Girl	7 „ 5 „	2 „ 8 „	—
13	Boy	12 „ 5 „	4 „ 2 „	Manager, Balhousie Works.
14	Girl	8 „ 6 „	2 „ 7 „	
15	„	12 „ 5 „	5 „ 4 „	Grocer.
16	Boy	6 „ 4 „	1 „ 3 „	Clerk.
17	„	11 „ 0 „	1 „ 8 „	Fireman.
18	„	9 „ 11 „	0 „ 9 „	Druggist.
19	Girl	15 „ 2 „	1 „ 3 „	Wood merchant.
20	Boy	13 „ 8 „	4 „ 3 „	Weaver.

The buildings of this institution are very good. They are heated by hot-water pipes, and are thoroughly well ventilated. They are also remarkably well supplied with maps (especially with *blank maps*, a proper supply of which is so often neglected in schools), and other apparatus. The drawing class room has been well supplied with models and other requisites from South Kensington. The institution afforded in these respects a strong contrast with the Burgh School of this town.

The registration is very complete, quite unusually so for Scotland; and I beg to express my thanks to the head-master for the minute and complete information which he afforded me. The attendance is very regular, partly because of the value attached to English subjects, and partly because the fees are paid in advance. The school had been, up to the date of my visit, regularly inspected and examined by the Government Inspector of Primary Schools; but there was some doubt whether this would be possible for the future. The following is a list of the teachers, and their salaries:—

Teachers.	Salaries.	Training.
Senior Department:	£	
Head master	250	
1st assistant	60	Glasgow Free Church Normal School.
2nd assistant	20	A former pupil in the Institution.
Junior Department:		
Master	80	Glasgow Free Church Normal School.
Assistant	30	Assistant to an English master in Perth for two years.
Infant and Industrial Departments:		
Mistress	60	Edinburgh Free Church Normal School.
1st assistant	40	Taught a school near Perth two or three years.
2nd „	12	Former pupil in Senior School.
Assist. for Industrial W.	25	Edinburgh Established Church Normal Sch.
Janitor	47	A military man.

This institution is a good specimen of an endowed school for the lower middle classes.

A Private School in Edinburgh.

Having a few hours to spare in Edinburgh, I paid a visit to a private school which has acquired some reputation in the town, and which was, I was told, drawing a large number of boys from the High School. I was anxious to discover, if possible, what were the causes that made boys leave the High School for this private school. I believe the causes to be the following, among others :—

(1.) *No curriculum is enforced*, but pupils may take what classes they like.

(2.) A *careful written examination* is given every year, and conducted by paid examiners, well qualified for that work. *Much attention is paid to writing.*

(3.) *Arithmetic and mathematics are thoroughly well taught.*

There may be, and probably are, other reasons why the parents of boys should prefer this private school to the ancient and celebrated public school of their town. But I believe these three to be the principal reasons.

This school being private property, I shall mention no names. But the following words, extracted from the prospectus for 1865–6, appear to me to contain much sound good sense, and to show a practical acquaintance with the educational wants of the middle classes. I have put into italics some expressions which particularly deserve the attention of the Commissioners. It will be observed that the tone and spirit of the proprietors is thoroughly public, and that it is only in the fact that it happens to belong to two private persons that the distinction between this and many public schools in Scotland is to be remarked.

"This school was established for the purpose of providing such an education as would qualify its Pupils for entering on a university course, for undergoing examinations for the public service, or for engaging in the ordinary avocations of business. During the whole of its history these objects have been steadily kept in view, and the confidence which has so long been extended to it is the best proof of the success with which they have been pursued. The changes which were introduced in 1858 were made with the view of still further adapting the various courses of study to the end which the founders of the Institution contemplated; and from the experience which we have already had of the arrangements then made, we are satisfied that they are well calculated to promote the efficient working of the school.

"The pupils who follow the regular course of study, extending over six years, *have their attention directed during the first four years to arithmetic, English, Latin, Greek or elementary mathematics, French, and writing; and during the last two, to Greek and Latin in combination with other branches, or exclusively to the study of algebra, geometry, applied mathematics, English, French, German, writing, and book-keeping. We would recommend the adoption of one or other of these courses of study to all those pupils who have the opportunity of commencing their attendance at the Institution at the age of eleven or twelve.*

"*In the first, second, third, and fourth classes, the pupils are expected to acquire a thorough knowledge of the principles of Arithmetic*, with facility and accuracy in the application of them to business transactions. Elementary mathematics, including the first rudiments of algebra and the simpler propositions of Euclid, form, in the fourth year, an alternative study with the Greek Rudiments and the Academy Greek Extracts. Special attention is paid in these junior classes to spelling, English grammar, and composition. The other subjects in English to which the attention of the younger scholars is directed, are the histories of Rome, Great Britain, and Ireland; the general geography of the Continents, the geography of the countries of Europe, British India, Canada, and the United States, in detail; physical geography; and a careful analysis of the chief poems of Cowper and Milton. The school offers a thorough classical education to those who avail themselves of the junior and

senior departments. In the first four years the rudiments form a part of the regular class work every session, while the pupils are accustomed to translate, during successive sessions, from the Academy Delectus and Eutropius Cæsar and Ovid, Sallust and Virgil. *We anticipate the best results from the early commencement of the study of French.* It is intended that much of the instruction of the second class in this language be communicated in the class-room, so that little demand may be made upon home preparation. The regular study of the grammar is commenced in the third and continued in the fourth, along with translations and exercises; while every encouragement is given to the boys to endeavour to understand and practise the spoken language.

"The mathematical studies of the fifth and sixth classes comprehend the first six books of Euclid, plane trigonometry, analytical geometry, algebra, and commercial arithmetic. In the sixth class, the principles of pure mathematics are applied to the study of natural philosophy, and to the theory and practice of land-surveying. This course is intended to give a full and accurate acquaintance with the first branches of mathematics, and to fit those who are intended for the military college and the universities to make further progress in the science. The fifth and sixth English may be taken either together or separately. The former is a class for English composition, chronology, history, and modern geography, with special reference to the physical, commercial, and political features of the various countries. The course of the sixth embraces the study of the history of English literature, the reading of some of Shakespeare's historical plays, the minute analysis of one or more of these plays, and the writing of weekly essays, chiefly on subjects connected with literature. In sixth class, division B, those pupils who do not take Latin have an opportunity of extending their acquaintance with history and geography. In the fifth and sixth Latin, the authors read are Horace, Livy, Cicero, Tacitus, and Juvenal, and special attention is given to Latin composition. In Greek, the boys proceed from the Greek extracts to Xenophon, Homer, Isocrates, Euripides, Thucydides, and Sophocles. These classes are particularly intended for those who mean to enter professions or pursue their studies subsequently at college. In the fifth class, two days a-week are devoted to German and three to French; while in the sixth, three are devoted to German and two to French. We have good reason to anticipate that the boys at the termination of their course will not only have a good grammatical acquaintance with these languages, and translate from them with ease, but also be able to write and speak them with considerable facility.

"*All the boys receive daily instruction in writing, or writing and book-keeping; and the greatest care is taken to secure neat, clear, and legible handwriting.*

"*Provision is likewise made, as in the principal French and German schools, for systematic instruction in physical science.* The rudimentary principles of natural philosphy and chemistry are taught experimentally in the Saturday lectures, with the aid of a complete set of apparatus. The object aimed at in these lectures is to communicate such a knowledge of scientific subjects as will enable the pupils to comprehend intelligently the references made to them in every-day life. There is likewise a practical class for elementary chemical analysis, which meets twice a-week in the laboratory.

"Fencing, and gymnastics, and dancing are taught in the afternoon between 3 and 4, on Tuesdays and Thursdays. The classes for landscape, figure, and water-colour drawing meet twice and thrice a-week at the same hour, and for architectural, mechanical, and engineering drawing, on Mondays, Wednesdays, and Fridays.

"The class for military drill meets on Saturdays between 11 and 12, and is free to the pupils attending the fencing and gymnastics.

"The Saturday classes during the first three quarters for Bible instruction, writing to dictation, and mercantile correspondence are free to all boys attending the school.

"*It will be seen from an inspection of the General Time Table on the next page that six hours of the fourth, fifth, and sixth classes can be devoted to English, arithmetic, mathematics, modern languages, writing, and book-keeping, without classics; the arithmetic of the fourth or the English of the sixth being substituted for the Latin of the fifth.*

"*While the regular pursuance of the six years' course is recommended to the parents and guardians of the pupils, we wish it to be most distinctly understood*

that the classes are open, as hitherto, to all scholars who may wish to select any special branches of study or any particular hours of attendance.

"We expect to have an important addition to our school premises about the beginning of next session. Two large class rooms and a hall of about 60 feet by 30, in addition to our present accommodation, will afford ample room for the classes and secure for us the advantages of thorough ventilation.

"The first and second classes have been taught during the last year in two divisions by different masters and in separate rooms. The divisions of each class have pursued the same course of study, and have been kept as nearly as possible abreast of each other. We have found this plan to be so conducive to the progress of the pupils when the classes are large that we mean to continue it."

GENERAL TIME TABLE.

Hours.	I. Class.	II. Class.	III. Class.	IV. Class.	V. Class.	VI. Class.
9–10	English.	Latin.	Arithmetic.	English.	Arithmetic and Algebra.	Latin or English.
10–11	English. Latin.	Latin. English.	Writing.	English.	Greek, or Writing and Book-keeping.	Greek or Natural Philosophy.
11–12	Latin.	English.	English.	Greek, or Elementary Mathematics.	Geometry.	Writing and Book-keeping.
12–1	Writing.	Arithmetic.	English, Mon., Wed., Friday. Latin, Tues., Thurs.	Latin.	English.	French, Tues., Thurs. German, Mon., Wed., Friday.
1–2	Arithmetic.	Writing.	Latin.	Writing.	French, Mon., Wed., Friday. German, Tues., Thurs.	Mathematics.
2–3	English.	French, Tues., Thurs. Latin, Daily.	French, Mon., Wed., Friday. Latin, Tues., Thurs. Arithmetic, Daily.	Arithmetic.	Latin.	English.
3–4				French, Daily.		
3–4	Landscape and Figure Drawing, daily—Architectural, Mechanical, and Engineering Drawing, Mon., Wed., Frid.—Practical Chemistry, Mon., Wed.—Gymnastics and Fencing, Tues. and Thurs.—Dancing, Tues., Thurs.					

Table of Quarterly Fees.

Matriculation Fee, including all Charges for Stationery, Coals, &c., Five Shillings annually.

—	I. Class.	II. Class.	III. Class.	IV. Class.	V. Class.	VI. Class.
Fee for the Course -	2*l.* 2*s.*	2*l.* 10*s.*	2*l.* 15*s.*	3*l.* 3*s.*	3*l.* 5*s.*	3*l.* 5*s.*
Without French - -	—	2*l.* 5*s.*	2*l.* 10*s.*	—	—	—
More than one hour, and less than the Course, per hour - - -	8*s.*	9*s.*	10*s.*	10*s.* 6*d.*	12*s.* 6*d.*	12*s.* 6*d.*
One hour daily - -	12*s.*	12*s.*	15*s.*	16*s.*	18*s.*	18*s.*

Extra Classes.

Quarterly Fees for—	With other Classes. £	s.	d.	With no other Classes. £	s.	d.
Landscape and Figure Drawing—Three times a-week -	0	15	0	1	11	6
,, ,, Twice a-week -	0	10	6		—	
,, ,, Five times a-week -	1	5	0	2	2	0
Water Colour Drawing—Three times a-week - -	1	10	0	2	2	0
,, ,, Twice a-week - -	1	1	0		—	
Architectural, Mechanical, and Engineering Drawing —Three times a-week - - - -	0	15	0	1	11	6
Practical Chemistry—Twice a-week - - -	1	1	0	1	11	6
Fencing and Gymnastics—Twice a-week - -	1	1	0	1	11	6
Drill - - - - - - -	0	6	0	0	10	6
Dancing—Twice a-week - - - -	0	18	0	1	7	0
Lectures—Once a week - - - -	0	5	0	0	10	6

The School Fees are payable in advance. The Quarterly Terms are 1st October, 15th December, 1st March, and 15th May; the Half-quarter Terms are 8th November, 22nd January, 8th April, and 22nd June.

The school contained, at the date of my visit, nearly 400 scholars. It is particularly worthy of notice, that though the proprietors do not attempt to enforce any curriculum, yet by offering to their pupils a good training in arithmetic and mathematics, they gain their confidence to such a degree that nearly all of them follow through the course which they recommend.

APPENDIX XI.—EXAMINATION PAPERS.

I.

PRELIMINARY ARITHMETIC. One hour and a half.

A.

1. Express in figures seventeen millions twelve thousands two hundreds and six (one amount).
2. What does 8210 mean? And how comes it to mean that?
3. A dealer bought 2,560 sheep at 2*l.* 4*s.* 7½*d.* each and 500 oxen at 3 guineas a head. He sold 800 of the sheep at 2*l.* 15*s.* 10*d.* each, and the remainder of the sheep at 45*s.* each. The oxen he sold at 70*s.* each, and his expenses in the transaction were 200*l.* Did he gain or lose by the transaction? And how much?
4. How many yards of carpet ⅜ths of a yard wide will cover a floor whose length is 27½ feet and breadth 20¾ feet?
5. Make out a bill for the following purchases:—

			s.	*d.*	
10 yards of	long cloth	at	0	9¾	a yard.
6 „	flannel	at	2	2½	„
15 „	ribbon	at	1	3	„
7¾ „	silk	at	4	6	„
6½ „	muslin	at	1	2	„
4 „	velvet	at	12	6	„
13 „	linsey	at	2	6	„

6. Express 4*l.* 17*s.* 6½*d.* as a vulgar fraction of a pound, and as a decimal.
7. Divide 172·9 by ·142 to 3 places of decimals; and multiply ·009 by ·00846.
8. Find by practice or proportion the value of 21 acres 2 roods 15 perches at 7*l.* 15*s.* 6*d.* per half acre.

HIGHER ARITHMETIC. One hour.

1. If the sun shining on the ocean 7 hours per day causes 8756·75 cubic feet of water to evaporate per hour on a surface of 2·875 square miles, what would be the weight of water evaporated on a surface of 879·398 square miles in 6 days 2½ hours, supposing the sun to shine 9 hours 37 minutes per day and the weight of a cubic foot of water to be 62½ lbs.
2. Extract the square root of 745·29, and the cube root of 33698267.
3. A grocer uses for a pound weight one which only weighs 15·75 ounces, what does he gain per cent. by his dishonesty?
4. Which is the better investment, the 3½ per cents. at 96, or the 4 per cents. at 111? And what is the difference per cent. between them?
5. A. can mow 2½ acres in 4⅔ days and B. 2⅙ acres in 3½ days. They mow together a field of 10 acres; how long will it take them to do it, and how many acres will each mow?

II.

PRELIMINARY ARITHMETIC. One hour and a half.

B.

1. Express in figures twenty millions two thousands and twelve (one amount.)
2. What does 1507 mean? And how comes it to mean that?
3. A dealer bought 2,560 sheep at 2*l.* 4*s.* 7½ each, and 500 oxen at 3 guineas a head. He sold 800 of the sheep at 2*l.* 15*s.* 6*d.* each, and the remainder of the sheep at 45 shillings each. The oxen he sold at 70 shillings each, and his expenses in the transaction were 200*l.* Did he gain or lose by the transaction, and how much?
4. How many yards of matting 2·4 feet broad will cover a floor that is 27·3 feet long and 20·16 feet broad?
5. Make out a bill for the following purchases:—

			s.	*d.*	
10	lbs. of	beef	at 0	7¾	per lb.
5½	„	„	at 0	10½	„
6	„	mutton	at 0	8	„
14	„	cheese	at 1	3	„
7¾	„	„	at 0	8	„
4	„	biscuits	at 3	4½	„

6. Simplify the following fraction:—

$$\left\{\frac{2}{3} \text{ of } \frac{3}{4}\right\} + \left\{\frac{1}{2\frac{1}{2}} - \frac{1}{6}\right\}$$

7. Divide 172·9 by ·142 to three places of decimals; and multiply ·009 by ·00846.
8. If a family of 9 people can live comfortably in England for 1,560 guineas a year, what will it cost a family of 8 to live in Belgium in the same style for seven months, prices being supposed to be there two-thirds of what they would be in England?

HIGHER ARITHMETIC. One hour.

1. If 9,000 persons travelling each 20 miles weekly give a railroad company a receipt of 900*l.* in one week, how many persons travelling each 30 miles weekly will give a receipt of 62,400*l.* a year when the cost of travelling per mile is reduced one-half?
2. Extract the square root of 2710·382, and the cube root of 7 to 3 decimal places.
3. If tea be purchased at 2*s.* 9*d.* per lb. and sold at 3*s.* 4*d.* per lb. what is the gain per cent?
4. What is the difference between the annual income arising from the investment of 2,150*l.* in the 3¼ per cents. at 87⅓ and that from the same sum in the 3 per cents. at 86½?
5. A. and B. can finish a piece of work in 1½ days, A. and C. in 2 days, and B. and C. in 3 days. If 6*s.* be paid for the piece of work what are a day's wages of each workman?

III.

PRELIMINARY ARITHMETIC. One hour and a half.

C.

1. Express in figures eighteen millions two hundred and ten thousands and twenty (one amount).
2. What does 24,012 mean? And how comes it to mean that?
3. A dealer bought 2,560 sheep at 2*l.* 4*s.* 7½*d* each, and 500 oxen at 3 guineas a head. He sold 800 of the sheep at 2*l.* 15*s.* 4*d.* each, and the remainder of the sheep at 45*s.* each. The oxen he sold at 70*s.* each, and his expenses in the transaction were 200*l.* Did he gain or lose by the transaction, and how much?
4. Make out a bill for the following purchases:—

		s.	*d.*	
10	lbs. of raisins	at 0	10½	per lb.
4½	„ nuts	at 2	4	„
15	„ figs	at 3	6½	„
8	„ „	at 0	11	„
5¾	„ currants	at 0	8	„
120	oranges	at 0	7½	per half dozen.

5. If ⅔rds of an estate be worth 220 guineas, find the value of ·2̇7̇ of it.
6. Simplify the following fraction:—

$$\frac{\frac{2\frac{1}{2}}{1} + 1\frac{2}{3} + \frac{1}{3\frac{1}{2}}}{3\frac{2}{3} - 2\frac{1}{4}}$$

7. Divide 172·9 by ·142 to 3 places of decimals; and multiply ·009 by ·00846.
8. If the sixpenny loaf weigh 4·35 lbs. when wheat is at 5·75 shillings per bushel, what weight of bread, when wheat is at 18·4 shillings per bushel, ought to be purchased for 18·13 shillings?

HIGHER ARITHMETIC. One hour.

1. If a mass of silver be worth 720,000*l.* when silver is worth 3*l.* 17*s.* 6*d.* per lb. troy, how much would it be worth when the current price is at the rate of 13·75 shillings for 2·5 ounces?
2. Find the side of a square field equal in area to a rectangular field 700 yards wide and 2,800 yards long; and extract the cube root of 15625.
3. A grocer mixes two kinds of tea which cost him 3*s.* 8*d.* and 4*s.* 4*d.* a pound respectively, what must be the selling price of the mixture in order that he may gain 15 per cent. on his outlay?
4. A person invests 1,248*l.* in the 3 per cents. at 95½, what will be his net half-yearly dividend after deducting 7*d.* in the pound per annum for income tax.
5. A. and B. can do a piece of work together in 4 hours, A. and C. together in 3⅗ hours, and B. and C. together in 5⅐ hours, in what time will each do the work alone?

IV.

Preliminary Arithmetic. One hour and a half.

D.

1. Express in figures nineteen millions eight hundred and nine thousands eight hundreds and ten (one amount).

2. What does 7058 mean? And how comes it to mean that?

3. A dealer bought 2,560 sheep at 2*l.* 4*s.* 7½*d.* each, and 500 oxen at 3 guineas a head. He sold 800 of the sheep at 2*l.* 15*s.* 2*d.* each, and the remainder of the sheep at 45 shillings each. The oxen he sold at 70 shillings each; and his expenses in the transaction were 200*l.* Did he gain, or lose, by the transaction? And how much.

4. A person who owns $\frac{4}{5}$ths of a ship sells $\frac{2}{3}$rds of his share for 1,200*l.* What is the value of the ship?

5. Make out a bill for the following purchases:—

			s.	*d.*	
12	lbs. of mutton	at	0	8½	per lb.
6½	„	„	at 0	9	„
14	„	beef	at 1	2	„
8¼	„	„	at 0	8	„
5¾	„	pork	at 0	6	„
8	„	cheese	at 1	3	„

6. Show that if $2\frac{1}{2}$, $\frac{3}{4}$, $1\frac{1}{3}$ and $\frac{4}{5}$ be added together both as fractions and decimals, the results coincide.

7. Divide 172·9 by ·142 to 3 places of decimals; and multiply ·009 by .00846.

8. Find by practice or proportion the value of 21 tons 6 cwt. and 24 lbs. at 12*l.* 17*s.* 6½*d.* per half ton.

Higher Arithmetic. One hour.

1. If 5 horses require as much corn as 8 ponies, and 15 quarters last 12 ponies for 64 days, how long may 25 horses be kept for 41*l.* 5*s.* 0*d.*, when corn is 22*s.* per quarter?

2. Extract the square root of 28·8369; and the cube root of 44.6 to three decimal places.

3. A person has goods worth 30*l.* He sells one-third of them so as to lose 10 per cent. What must he sell the remainder at so as to gain 20 per cent. on the whole?

4. Which is the more profitable investment; the purchase of 3 per cent. consols at 96*l.*, or the purchase of shares in an insurance office at 227*l.* per share, the annual dividend on a share being 7*l.* 10*s.* 0*d.*

5. A is twice, and B is just one and a half times as good a workman as C. The three work together for two days, and then A works on alone for half a day, and B for one day. How long would it have taken A and C together to complete as much as the three will have thus performed?

X.

1. If the square described upon one of the sides of a triangle be equal to the squares described upon the two other sides of it, then the angle contained by those two other sides is a right angle.
2. A B C is a triangle, right angled at A and having the angle B double of the angle C. Show that the side C B is double of the side A B.
3. If a straight line be divided into any two parts: then the squares of the whole line and one of the parts shall be equal to twice the rectangle contained by the whole and that part together with the square of the other part.
4. The square of the difference of two numbers is equal to the sum of the squares of the two numbers diminished by twice their product. Prove this both geometrically and algebraically.
5. The angle at the centre of a circle is double of the angle at the circumference upon the same base, that is, upon the same part of the circumference.
6. The exterior angle of a quadrilateral figure inscribed in a circle is equal to the interior and opposite.
7. Describe a circle about a given square.
8. Similar triangles are to one another in the duplicate ratio of their homologous sides.

XIX.

(Two hours.)

Maximum.

1. Translate into French :—
   Two worthy peasants went together to find their minister. One of them said to him—"I had a field which was quite close to the property of my neighbour whom you see here with me. As for him, he had also one which was far from his house and near mine. We have made an exchange of them. But it happened that yesterday in digging a ditch in the ground which my neighbour made over to me, I found a vessel full of gold pieces." 40
2. Write out the present, the future, and the past definite tenses in the indicative mood of the verbs, pouvoir, envoyer, acquérir, and s'en aller. 15
3. Give, with examples, some rules for the agreement and invariability of the past participle. 15
4. Translate into French :—
   (*a.*) What time is it? I read this book three times.
   (*b.*) How much does it come to? It will come to no good. Come forward! Come back! The lid is coming off. Let us come to terms.
   (*c.*) How do you do? That will do. I have done. I can do without you.
   (*d.*) He sent me word that he would come. He has kept his word. 30

100

XXI.

(Two hours.)

Maximum.

1. Translate into Latin:—

Immediately on receiving intelligence of Harold's death, the citizens of London proclaimed Edgar Atheling; and a general assembly of the nobles met to consult on the affairs of the realm. England, however, was at this time remarkably deficient in great men; and the Saxon councils wanted both energy and decision. No vigorous measures were taken for repelling the invader, and when William appeared before the walls of London the English were taken by surprise. Nevertheless, the citizens closed their gates, and prepared to stand a siege: on which William considered it most prudent to retire to Wallingford, that he might intercept the supplies from the north. 50

2. Translate into English:—

Silva erat Ciminia magis tum invia atque horrenda quam nuper fuere Germanici saltus, nulli ad eam diem ne mercatorum quidem adita. Eam intrare haud fere quisquam præter ducem ipsum, audebat: aliis omnibus cladis Caudinæ nondum memoria aboleverat. Tum ex iis qui aderant (consulis fratrem M. Fabium, Kæsonem alii, C. Claudium quidam matre eadem qua consulem genitum tradunt) speculatum se iturum professus, brevique omnia certa allaturum. Servus ei dicitur comes unus fuisse; nec quidquam aliud proficiscentes quam summatim regionis quæ intranda erat naturam ac nomina principum in populis accepere; ne qua inter colloquia insigni nota hæsitantes deprehendi possent. Iere pastorali habitu, agrestibus telis, gæsisque binis armati. *Liv.* ix. 36. 30

3. Turn the following into the oratio directa:—Negare Appius interrogationem tribuni magnopere ad causam pertinere suam. Nam, etsi tenuerit lex Æmilia eos censores, quorum in magistratu lata esset, quia post illos censores creatos eam legem populus jussisset, quodque postremum jussisset id jus ratumque esset; non tamen aut se aut eorum quemquam qui post eam legem latam creati censores essent teneri ea lege potuisse. *Liv.* ix. 33. 20

100

XXII.

Maximum 200. Three hours.

1. Translate into English:

(*a.*) ξυνεβεβήκει δὲ ἀπὸ τοῦ πάνυ ἀρχαίου ἑτέρων μᾶλλον Ἀθηναίοις τοῦτο. ἐπὶ γὰρ Κέκροπος καὶ τῶν πρώτων βασιλέων ἡ Ἀττικὴ ἐς Θησέα ἀεὶ κατὰ πόλεις ᾠκεῖτο πρυτανεῖά τε ἔχουσα καὶ ἄρχοντας, καὶ ὁπότε μή τι δείσειαν οὐ ξυνῄεσαν βουλευσόμενοι ὡς τὸν βασιλέα, ἀλλ' αὐτοὶ ἕκαστοι ἐπολιτεύοντο καὶ ἐβουλεύοντο.

Parse the words underlined. 40

(*b.*) πάντων δὲ φανερώτατος Βρασίδας ἐγένετο. τριηραρχῶν γὰρ καὶ ὁρῶν τοῦ χωρίου χαλεποῦ ὄντος τοὺς τριηράρχους καὶ κυβερνήτας εἴ πη καὶ δοκοίη δυνατὸν εἶναι σχεῖν ἀποκνοῦντας καὶ φυλασσομένους τῶν νεῶν μὴ ξυντρίψωσιν, ἐβόα λέγων ὡς οὐκ εἰκὸς εἴη ξύλων φειδομένους τοὺς πολεμίους ἐν τῇ χώρᾳ περιδεῖν τεῖχος πεποιημένους, ἀλλὰ τάς τε σφετέρας ναῦς βιαζομένους τὴν ἀπόβασιν καταγνύναι ἐκέλευε, καὶ τοὺς ξυμμάχους μὴ ἀποκνῆσαι ἀντὶ μεγάλων εὐεργεσιῶν τὰς ναῦς τοῖς Λακεδαιμονίοις ἐν τῷ παόντι ἐπιδοῦναι. 60

Maximum.

2. Where are Dunbar, Bannockburn, Halidon Hill, and Pinkie? 10
3. Mention the dates, cause, and result of any battles that occurred at those places. 15
4. In which of the centuries between 800 A.D. and 1700 A.D. were the greatest discoveries made; what were those discoveries, and who were the persons that made them? 30
5. Give the approximate dates for the following events, and say in what reigns they severally occurred;—(1.) The independence of the United States of America. (2.) The battle of Waterloo. (3.) The independence of Greece. (4.) The abolition of Slavery in the English colonies. (5.) The repeal of the English corn laws. (6.) The re-establishment of the French empire. (7.) The Crimean war. 25
6. Describe the course of *one* of the following rivers:—

The Rhine.	The Elbe.
The Danube.	The St. Lawrence.
The Severn.	The Mississippi.
The Tay.	The Ganges. 20

200

XXV.

: 2½ hours.

1. Translate into French—

A wretched miser had hidden his treasure in a field. He thought of it every moment, and went to see it at least 20 times a day. Some one, suspecting that he did not go to that field so often for nothing, watched him, and followed him to the spot; found the treasure and took it away. The miser, finding that his money was gone when he returned to the place, bewailed his misfortune, lamented, and worried himself to death. A passer-by asked him what was the matter with him. 40

2. Analyse, and parse the words underlined—

Necker, satisfait d'avoir obtenu la double représentation du tiers état, craignait l'indécision du roi, et la mécontentement de la cour. 20

3. Write a short letter in French to an acquaintance who has invited you to spend the vacation with him. Explain that you would have answered his letter sooner, but that you have only just returned from a tour in the Highlands. Express your regret that you are unable, owing to the close of the vacations, to accept his kind invitation, and your hope that on another occasion you may be more fortunate. Thank him for his kind intention in inviting you, and conclude your letter with the usual formalities; dating it from London on the 14th of September, in the year 1865. 60
4. Translate the following idiomatic phrases into English—

Vous avez fait votre composition par manière d'acquit.
Je vous adresse cette question par manière d'acquit.
Mettez votre acquit à ce document.
En êtes-vous venu à des voies de fait?
Au fait, vous avez raison.
Je suis au fait de tout ce qui s'est passé.
Je vous prends sur le fait.
J' en suis. Je n' en suis pas. Où en êtes-vous?
Je n' en suis plus. Y 'êtes-vous? Je n'y suis pour rien. 30

150

XXVI.

1. Divide

(i.) $a^2 - 2ab + b^2$ by $a - b$

(ii.) The product of $x^3 - 2x + 1$ and $x^3 - 3x + 2$ by $x^3 - 3x^2 + 3x - 1$

(iii.) $(a^2 - bc)^3 + 8b^3c^3$ by $a^2 + bc$.

2. In algebraical subtraction why is it necessary to change the signs of the subtrahend?

3. A house and garden cost 850*l.*; and 5 times the price of the house was equal to 12 times the price of the garden.
Find the price of each.

4. Find the G. C. M. of $x^5 - y^5$ and $x^2 - y^2$
and the L. C. M. of $x^3 - x$, $x^3 - 1$, and $x^3 + 1$.

5. Multiply $\frac{x(a-x)}{a^2 + 2ax + x^2}$ by $\frac{a(a+x)}{a^2 - 2ax + x^2}$

Divide $\frac{4(a^2 - ab)}{b(a+b)^2}$ by $\frac{6ab}{a^2 - b^2}$

6. A person after paying 7*d.* in the pound for income-tax, has 408*l.* 4*s.* 8½*d.* —What had he at first?

7. A pound of tea and 3 pounds of sugar cost 6*s.*; but if sugar were to rise 50 per cent. and tea 30 per cent. they would cost 7*s.* Find the price of tea and sugar per pound.

8. Extract the square root of the following:

(i.) $x^4 - 4x^3 + 8x + 4$.

(ii.) $(a-b)^4 - 2(a^2 + b^2)(a-b)^2 + 2(a^4 + b^4)$

(iii.) $\left(x + \frac{1}{x}\right)^2 - 4\left(x - \frac{1}{x}\right)$

9. Solve the quadratics

(i.) $(x-1)(x-2) = 6$.

(ii.) $\frac{x+2}{x-2} + \frac{x-2}{x+2} = \frac{13}{6}$

(iii.) $\frac{x}{2} + \frac{(x-1)^{\frac{2}{3}}}{\sqrt{4x-1}} = \frac{11}{16}$

10. What are eggs per dozen when two more in a shilling's worth lower the price one penny per dozen?

SCHOOLS INQUIRY COMMISSION.

REPORT

BY

MR. MATTHEW ARNOLD.

NOTE.

The interval in the pagination has been caused by an alteration in the arrangement of the several Reports.

INSTRUCTIONS.

Schools Inquiry Commission,
2, Victoria Street, Westminster.
5th April 1865.

Sir,

It has been considered advisable by the Commission appointed by Her Majesty to inquire into the education given in schools not comprised within the scope of Her Majesty's recent Commissions on the state of popular education and on certain public schools, that an investigation should be made into the system of education of the middle and upper classes which prevails in France, Germany, Switzerland, and Italy. The Commissioners having appointed you to conduct this inquiry, I am directed to give you the following instructions:

1. You will ascertain to what extent schools are provided for the people by laws passed for that purpose, and to what extent the means of education are left to be supplied by the voluntary efforts of individuals. You will inquire whether parents are under any legal obligation to have their children educated; if so, whether those who neglect this obligation are subject to any penalty; and whether this obligation has any affect in the prevention or diminution of juvenile delinquency. You will state not only the provisions of the law on these subjects, but also the manner in which it is enforced, and the extent to which it is practically operative.

2. You will inform yourself of the manner in which the schools are supported, whether by any funds in the nature of endowment or appropriation by the central Government, or by local taxation, or by subscription, or by school fees. If there are any funds appropriated by the State, you will ascertain the source from which they are derived, their amount, and the principle of their distribution among the various local bodies. If they arise from special or local taxation, you will ascertain the principle and manner of its assessment, and its amount relatively both to the income of the ratepayer and to the other taxation of the country. And in all cases you will ascertain the average cost of the education of a scholar, and particularly its full cost to the parents.

3. With respect to the *administration* of the schools, you will inquire into the relations which exist between the central government and the local government; into the constitution of

the local governing bodies; into the relations between them and the teachers, and of the teachers among themselves and with their scholars; into the extent to which mistresses are employed in schools for either or for both sexes; into the character and frequency of any inspection or control by the governors; into the qualifications, duties, and salaries of the teachers, the tenure of their office, and the character and repute of their profession.

4. The *internal organization* must depend greatly on the mutual relations between different schools or classes of schools, how far they compete with or supplement one another, upon the ages and numbers of the pupils, and the degree in which both sexes and different ranks of life are associated in the same school. And here, the character of the lessons and exercises; the way in which they are prepared, whether with or without assistance; the method of teaching, whether conducted in large or small classes or by an individual instruction; the books and apparatus used; the seasons and hours of school work, with their distribution among the different subjects of instruction; the length of vacations; the amusements and social life of the pupils; the size and arrangements of the school buildings and playgrounds; the supervision exercised over day scholars out of school hours, and the proportion of boarding schools to day schools, and of boarders to day scholars, are details of much interest and importance, which you should study in small and in large schools in the country districts as well as in the thickly-peopled towns. You will ascertain the average attendance of the scholars and the number of months or weeks of attendance during the year. You will also pay special attention to the provision made for discipline and moral training.

5. With regard to the *educational results* you will endeavour to be present during the school work of some of the ordinary schools, as well as those of a more important character, and ascertain whether the subjects taught are taught with more or with less accuracy, and whether the result is a greater or a less degree of culture than in the corresponding schools of this country. You will inquire into the effect of the association of scholars of both sexes and of different ranks of life in the same school. You will also investigate the effect of the school system and teaching on the formation of character and their adaptation to the subsequent life of the pupils.

6. Lastly, you will inquire whether any and what provision is made for religious instruction; to what extent children of different religious denominations are taught in the same school, and what is the effect of this association both at the time and in after life; and in what other manner any difficulties that may arise from the existence of different religious denominations are met.

Copies of the instructions addressed to the other Assistant Commissioners under these Commissions, and of the questions and forms to be answered by the authorities of schools here, will be supplied you. Any information which you can obtain in this shape will have the advantage of being more readily comparable with the details of English Schools. Where you cannot obtain direct answers, these papers will serve to explain more fully the points to which the Commissioners' inquiry is directed, and to guide without unduly limiting your investigation. You must use your own discretion as to the particular places you visit, and schools you inspect, selecting such as may enable you to report with confidence on the general state of education and the means used to harmonize its working, and secure its efficiency.

The Commissioners consider that your inquiry may be completed in six months, and your Report in two months more.

By order of the Commissioners.

H. J. Roby,

Secretary to the Schools Inquiry Commission.

Matthew Arnold, Esq.

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REPORT.

SIR, London, 1866.

HAVING been charged by the Schools Inquiry Commission with the task of investigating the system of education for the middle and upper classes which prevails in France, Germany, Switzerland, and Italy, I proceeded to Paris on the 8th of April last year. I remained on the Continent nearly seven months, and during that time I visited the four countries named, and made as careful a study as I could of the matters to which the Commission had directed my attention. In prosecuting my inquiries I received the most ready and full help both from the representatives of Her Majesty in the foreign countries which I visited, and from the governments to which Her Majesty's representatives recommended me. I gladly take the opportunity of expressing, at the outset of this Report, my sincere gratitude for the abundant kindness and assistance which I thus received.

At the outset, also, let me state the interpretation which I found myself obliged to put upon the Commissioners' instructions to me to investigate "the system of instruction of the middle and upper classes." The system of instruction of the upper classes, at any rate, includes, if it is taken in its widest sense, the whole of university instruction. University instruction is in itself a very large subject; the Commission which sent me does not concern itself with university instruction in England; and in order to avoid attempting more than I could perform, I thought it best to limit, in a great degree, my inquiry to that kind of education which forms the object of the present Commission's Inquiry in this country. That kind of education is on the Continent generally known by the name of *secondary instruction*. The Schools Inquiry Commission deals with the secondary instruction of England, except so far as relates to a few large schools which had already been subjected to a special investigation, and which were therefore withdrawn from the field of this Commission's inquiry. The secondary instruction, therefore, of France, Germany, Switzerland, and Italy was that to which I directed my attention. University instruction, the instruction given by the different faculties, goes generally on the Continent by the name of superior instruction. Superior instruction I treated as for the most part beyond the scope of my inquiry; I touched it directly only at the point where secondary instruction touches it—at the school-boy's passage out of the

school-boy stage of his instruction and entrance upon another, through his matriculation. My Report therefore will be found to deal only incidentally, and not in any complete manner, with the instruction of the Universities.

The four countries to which I was sent I visited in the following order:—France, Italy, Germany, Switzerland. I propose to take them in the order in which I visited them.

I.—FRANCE.

Development of present system of secondary instruction in Europe.

Popular education has sprung out of the ideas and necessities of modern times, and the elementary school for the poor is an institution which has no remote history. With the secondary school it is otherwise. The secondary school has a long history; through a series of changes it goes back, in every European country, to the beginnings of civilized society in that country; from the time when this society had any sort of organization, a certain sort of schools and schooling existed, and between that schooling and the schooling which the children of the richer class of society at this day receive there is an unbroken connexion. In no country is this continuity of secondary instruction more visible than in France, notwithstanding her revolutions; and in some respects France, in that which concerns the historical development of secondary instruction, is a typical country. All the countries of western Europe had their early contact with Greek and Roman civilization, a contact from which their actual books and schools and science begin; France had this more than any of them, except Italy. All the countries of western Europe had in the feudal and catholic Middle Age their universities, under whose wings were hatched the colleges and teachers that formed the germ of our actual secondary instruction; and the great Middle Age university was the University of Paris. Hither repaired the students of other countries and other universities, as to the main centre of mediæval science, and the most authoritative school of mediæval teaching. It received names expressing the most enthusiastic devotion: the *fountain of knowledge*, the *tree of life*, the *candlestick of the house of the Lord.* "The most famous University of Paris, the place at this time and long before whither the English, and mostly the Oxonians, resorted," says Wood. *Tandem fiat hic velut Parisiis . . ad instar Parisiensis studii . . . quemadmodum in Parisiensi studio . . .* say the rules of the University of Vienna, founded in 1365. Here came Roger Bacon, St. Thomas Aquinas, and Dante; here studied the founder of the first university of the Empire, Charles the Fourth, Emperor of Germany and King of Bohemia, founder of the University of Prague;* here Henry the Second in the 12th century proposed to refer his dispute with Becket; here, in the 14th, the schism in the papacy and the claims of the rival popes were brought for judgment. In Europe and Asia, in foreign cities and on battle

* Founded 1348.

fields, among statesmen, princes, priests, crusaders, scholars, passed in the middle ages this word of recognition, *Nos fuimus simul in Galandiâ*—the Rue de Galande, one of the streets of the old university quarter, the *quartier Latin* of Paris.

This development best traced in France.

The countries of western Europe, leavened, all of them, by the one spirit of the feudal and catholic Middle Age, formed in some sense one community, and were more associated than they have been since the feudal and catholic unity of the Middle Age has disappeared and given place to the divided and various life of modern Europe. In the mediæval community France held the first place. It is now well known that to place in the 15th century the revival of intellectual life and the re-establishment of civilization, and to treat the period between the fifth century, when ancient civilization was ruined by the barbarians, and the 15th, when the life and intellect of this civilization reappeared and transformed the world, as one chaos, is a mistake. The chaos ends about the 10th century; in the 11th there truly comes the first re-establishment of civilization, the first revival of intellectual life; the principal centre of this revival is France, its chief monuments of literature are in the French language, its chief monuments of art are the French cathedrals. This revival fills the 12th and 13th centuries with its activity and with its works; all this time France has the lead, in the 14th century the lead passes to Italy; but now comes the commencement of a wholly new period, the period of the Renaissance properly so called, the beginning of modern European life, the ceasing of the life of the feudal and catholic Middle Age. The anterior and less glorious Renaissance, the Renaissance within the limits of the Middle Age itself, a revival which came to a stop and could not successfully develope itself, but which has yet left profound traces in our spirit and our literature—this revival belongs chiefly to France. France, then, may well serve as a typical country wherein to trace the mediæval growth of intellect and learning; above all she may so stand for us, whose connexion with her in the Middle Age, owing to our Norman kings and the currency of her language among our cultivated class, was so peculiarly close; so close that the literary and intellectual development of the two countries at that time intermingles, and no important event can happen in that of the one without straightway affecting and interesting that of the other. As late as the year 1328 we find French an alternative language, at Oxford, with Latin; the students are to use *colloquio Latino vel saltem Gallico.* With the hostility of the long French Wars of Edward the Third comes the estrangement, never afterwards diminishing but always increasing. To this day it is impossible to read the French literature of the true Middle Age without feeling that here is the moment when the life of the French nation comes really closest to our own; thought and expression have both of them much which we recognize as akin to us, which we have in a great degree retained, while the French have gone away from it to a thought and expression more effective no doubt for many purposes, but

more unlike ours. To show how this is the case with thought and style would need more space than I have here at command; one example out of a thousand—the word *rescouer*, for instance, "to rescue," which the French had in the Middle Age, which we have still, but which the French have no longer, will show how it is the case with language.

Roman period.

Roman civilization in Gaul, as in other parts of the empire, organized a system of schools. Before the ruin of that civilization in the fourth century, there were great schools in important towns, Vienne, Lyons, Bordeaux, Arles, Agen, Clermont, Perigueux; and at these schools, christian children began to appear. Then came the invasions of the barbarians, and the break-up of the old order of things. For some time schooling ceased to be a concern of lay society; it went on in the shelter of the church and for the benefit of the ecclesiastical body. The great schools from the 4th century to the 12th are the monastery schools, such as the school of Saint Victor at Marseilles, of Lérins in the isles of Hyerès, of Saint Claude in Franche Comté, of Saint Médard at Soissons. There were 400 monks studying at the school of Saint Médard in the sixth century. A famous monastery school for women also, that of Chelles near Paris, existed as early as the time of the Merovingian kings. But as a new state of society gradually formed itself and became solid, signs appeared of the lay class too coming to school. A decree of Pope Eugene II., in 826, ordered that *in universis episcopiis subjectisque plebibus et aliis locis in quibus necessitas occurrerit, omnino cura et diligentia adhibeatur ut magistri et doctores constituantur, qui studia literarum, liberaliumque artium dogmata, assidue doceant.* The Council of Aix-la-Chapelle, in 816, had divided the school into interior and exterior; the first for novices in training for the Church, the second for lay boys. In 855 this arrangement was carried into effect at Fleury sur Loire, one of the schools which Theodulf, Bishop of Orleans, employed by Charlemagne in his plans of social reconstruction, had founded. At Fleury sur Loire was formed a school expressly for the sons of laymen, the youth of the upper class; it was called *Hospitale Nobilium.* The Palace School of Charlemagns is well known. Charlemagne's astonishing efforts at reconstruction were, however, premature; after his death followed another period of confusion and slow formation. But about the 11th century we see feudal society, with institutions naturally developed and destined to endure for a long while, in possession of France, England, and Germany. From about the 11th century, date the beginnings of an instruction which has, with many changes of names, impulses, and objects, been going on uninterruptedly ever since.

Mediæval period.

Our Stephen Harding, the third abbot of Citeaux, and the true founder of the great order of the Cistercians, was studying at the School of Paris in 1070. The name of Abelard recalls the European celebrity and immense intellectual ferment of this school in the 12th century. But it was in the first year of the following

century, the 13th, that it received a charter from Philip Augustus, and thenceforth the name of University of Paris takes the place of that of School of Paris. Forty-nine years later was founded University College, Oxford, the oldest college of the oldest English university. Four nations composed the University of Paris—the nation of France, the nation of Picardy, the nation of Normandy, and (signal mark of the close intercourse which then existed between France and us!) the nation of England.* The four nations united formed the faculty of arts. The faculty of theology was created in 1257, that of law in 1271, that of medicine in 1274. Theology, law, and medicine had each their Dean; arts had four Procurators, one for each of the four nations composing this faculty. Arts elected the rector of the University, and had possession of the University chest and archives.

University of Paris.

The pre-eminence of the Faculty of Arts indicates, as indeed does the very development of the university, an idea, gradually strengthening itself, of a lay instruction to be no longer absorbed in theology, but separable from it. The growth of a lay and modern spirit in society, the preponderance of the crown over the papacy, of the civil over the ecclesiastical power, is the great feature of French history in the 14th century, and to this century belongs the highest development of the University. But the ecclesiastical power never abandoned its claims to a control of education; it had numerous means of action on the University, and it waged a constant war for mastery, often with success. The Chancellor of the Cathedral of Nôtre Dame was the ecclesiastical chief, as the rector was the academical chief, of the University; the seal of the University, for the first 20 years of its existence, is the seal of its ecclesiastical chief, the Chancellor of Notre Dame. When, between 1221 and 1225, the University struck, for the first time, a seal of its own, the Chapter of Notre Dame complained to the papal legate at Paris of the usurpation, and the legate ordered the seal to be broken. The scholars rose in insurrection, assailed the legate's house, and compelled him to fly. The dispute was referred to the Pope, and at last Innocent IV., in 1244, granted to the University a seal of its own.

But the licence to teach, the crown of the University course, was conferred by the ecclesiastical power, the Chancellor of the Cathedral. Not till he was provided with this licence could the candidate appear before the masters of his faculty and receive from them the bonnet of doctor in law, medicine, or theology, of master in arts. So far the University had to admit the intervention of the authority of the metropolitan church. Nor was it successful in freeing itself from the intrusion of the mendicant orders, who saw in the right of teaching a powerful means of

* Another mark of this close intercourse is the choice of a patron by the nation of France; this patron was St. Thomas of Canterbury. That of the nation of England was St. Edmund, the Saxon martyr-king. In the 15th century, when the hundred years' war had separated France and England, the nation of Germany took the place of ours, and St. Charlemagne took that of St. Edmund. In 1661 Charlemagne was made by statute the common patron of the University.

influence. The Dominicans, on an occasion when the University had shut its schools, in 1229, offered themselves as teachers of theology; the University refused to them and the Franciscans the degree of master and the privilege of teaching; but on an appeal to the Pope the University had to give way, and in 1257 Saint Thomas Aquinas and Saint Bonaventura were made doctors in theology by the Chancellor, and admitted to teach in Paris. The admission of the other orders followed.

But the importance of the University in the 13th and 14th century was extraordinary. Men's minds were possessed with a wonderful zeal for knowledge, or what was then thought knowledge, and the University of Paris was the great fount from which this knowledge issued. The University and those depending on it made at this time, it is said, actually a third of the population of Paris; when the University went on a solemn occasion in procession to St. Denis, the head of the procession, it is said, had reached St. Denis before the end of it had left its starting place in Paris. It had immunities from taxation, it had jurisdiction of its own, and its members claimed to be exempt from that of the provost of Paris; the kings of France strongly favoured the University, and leaned to its side when the municipal and academical authorities were in conflict; if at any time the University thought itself seriously aggrieved, it had recourse to a measure which threw Paris into dismay—it shut up its schools and suspended its lectures.

Creation of colleges.

In a body of this kind the discipline could not be strict, and the colleges were created to supply centres of discipline which the University in itself—an apparatus merely of teachers and lecture-rooms—did not provide. The 14th century is the time when, one after another, with wonderful rapidity, the French colleges appeared. Navarre, Montaigu, Harcourt, names so familiar in the school annals of France, date from the first quarter of the 14th century. The College of Navarre was founded by the queen of Philip the Fair, in 1304; the College of Montaigu, where Erasmus, Rabelais, and Ignatius Loyola were in their time students, was founded in 1314 by two members of the family of Montaigu, one of them Archbishop of Rouen. The majority of these colleges were founded by magnates of the church, and designed to maintain a certain number of bursars or scholars, during their university course. Frequently the bursarships were for the benefit of the founder's native place, and poverty, of which among the students of that age there was no lack, was specified a title of admission.

Along with the University of Paris there existed as in France, in the 14th century, the Universities, of Orleans, Angers, Toulouse, and Montpellier. Orleans was the great French school for the study of the civil law; Reuchlin and Theodore Beza studied it there. The civil law was studiously kept away from the University of Paris, for fear it should drive out other studies, and especially the study of theology; so late as the year 1679 there was no chair of Roman

or even of French law in the University of Paris. The strength of this University was concentrated on theology and arts, and its celebrity arose from the multitude of students which in these branches of instruction it attracted.

The instruction in the mediæval schools.

One asks oneself with interest what was the mental food to which this vast turbulent multitude pressed with such inconceivable hunger. Theology was the great matter; and there is no doubt that this study was by no means always that barren verbal trifling which an ill-informed modern contempt is fond of representing it. When the Bishop of Paris publicly condemned, as current in the University, such propositions as these: *Quod sermones theologi sunt fundati in fabulis; Quòd nihil plus scitur propter scire theologiam; Quod fabulæ et falsa sunt in lege christianâ sicut et in aliis; Quod lex christiana impedit addiscere; Quod sapientes mundi sunt philosophi tantum,* it is evident that around the study of theology in the mediæval University of Paris there worked a real ferment of thought, and very free thought. But the University of Paris culminated as the exclusive devotion to theological study declined, and culminated by virtue of that declension. A teaching body with a lay character could not have been created by the simple impulse to theological study. The glory of the University of Paris was its Faculty of Arts, its *artiens,* as they were called; it was among the students in this faculty that the great ardour showed itself, the great increase in numbers. The study of this faculty was the seven arts* of the *trivium* and *quadrivium;* the three arts of the *trivium* were grammar, rhetoric, and dialectic; the four of the *quadrivium,* arithmetic, geometry, astronomy, music. This was the liberal education of the middle age, and it came direct from the schools of ancient Rome. In the work, still extant, of Martianus Capella, an African grammarian established at Rome in the fifth century, the arts of the *trivium* and *quadrivium* are set forth in order, in a mixture of prose and verse; and this book was one of the chief text-books of the middle age, and its great guide to a liberal education. Such an education was apparently possible with the programme offered by the seven arts. Rhetoric included poetry, history, composition—the humanities in general; dialectic took in the whole of philosophy. The mediæval teacher of grammar had for his text-books the grammars of Donatus and Priscian, coming from fully competent authorities, and quite sufficient, if properly used, for the teacher's purpose. The great monastery schools of Cluny, Saint Victor, and the Bernardines, assigned three years to grammatical studies, and the University professed to admit to its teaching no student who was not already grounded in them; *qui nescit partes, in vanum tendit ad artes.* But a measure of the good sense of the grammatical studies of the time is supplied by *Donatus moralizatus,* the grammar of Donatus *moralized,* as was then the fashion with all books used for instruction. "What is the *pronomen?*" the learner

* Enumerated in this line of middle-age Latin verse:
Lingua, tropus, ratio, numerus, tonus, angulus, astra.

is made to ask. "Man is thy *nomen*," the teacher answers, "sinner is thy *pronomen*. Therefore, when thou makest thy "prayer to God, use thy *pronomen* only, and say, 'O heavenly "Father, I call not upon thee as man, but I implore thee as "sinner.'" Again, "Why," the learner asks, "is the preposi- "tion the consideration of the joy of the elect?" The answer is, "*Quia illi præponuntur damnandis.*"

The scholastic philosophy remains a monument of what the middle age achieved in the favourite art, the art which starved all its six sisters—Dialectic; but what was really the instruction given and the proficiency acquired in the humanities and mathematics it is not so easy to determine. The word mathematics was at that time synonymous with magic, as is shown by a hexameter line in a poem for the use of the schools—a line equally unpromising for their mathematics and for their scholarship: *Datque mathematicos comburi theologia.* The arithmetic most in esteem was that of the computers, which dealt with epacts, the golden number, the dominical letter, and all the calculations necessary for framing the ecclesiastical calendar. But a catalogue of the Sorbonne library, in 1290, shows that among the books was a treatise on geometry in French, *Practica Geometriæ in Gallico*, of which the first words are quoted in the catalogue. The catalogue of the same institution, in 1338, has several copies of a Latin version of Euclid's Geometry. There is no mention of any work on algebra or mechanics. In the Sorbonne catalogue of 1290 appears Ovid; in the catalogue of 1338 he is joined by Terence, Virgil, Horace, Lucan, Juvenal, Statius. Ovid was the favourite poet, and a special, though a curious, object of moralization. Numerous translations of the Latin classics were made for John of France and Charles V., showing that much attention and interest was already drawn to these works; but the frequent mistakes show also how imperfect was the mastery of them by that age.

The Council of Vienne, in 1311, decreed that at the Court of Rome, and in the four Universities of Paris, Oxford, Bologna, and Salamanca, there should be classes of Hebrew, Arabic, and Chaldee. Pope Clement V. is said to have at the same time enjoined the study and teaching of Greek. It is certain that in the monasteries of the Dominicans, who for their missions in the East needed the Oriental languages, individuals acquired a knowledge of them; the Dominicans of Dijon in 1439 give themselves, in a document which has been preserved, the name of *Massorii*, as the inheritors of the tradition of the Jewish doctors. The same order, renowned for its devotion to learning, sent members of its body to learn Greek in Greece itself, and as early as the 13th century produced translations of Aristotle, Plato, and Proclus. But it is evident that the study of Greek and the Oriental languages was confined to a few individuals, and did not pass into the general school instruction of the time; for the project of founding the study of these languages, as something still lacking to the schools, appear again and again in the 15th century. In 1455,

and again twenty-five years later, the schools of Paris propose the establishment of a chair of Hebrew, as still a desideratum; and an envoy of the Greek Emperor, Manuel Palæologus, found at Lyons, in 1395, no one who could understand his language.

The University of Paris and the Renaissance.

The eminence of the University of Paris was in the scholastic philosophy; its culminating moment was the 14th century, its greatness was mediæval. It did not follow the growth of the time, assimilate the new studies of the Renaissance and the 16th century, make itself their organ, and animate with them the French schools of which it was the head. Ramus, the chief representative among French teachers of the new studies and their spirit, who took as the subject of his thesis for the degree of master of arts, *Quæcumque ab Aristotele dicta essent, commentitia esse*, marking thereby the gulf which had begun to separate men's spirit from the old learning—Ramus, though he began his career as a servitor at the College of Navarre, passed his life in bitter conflict with the University, by which he was twice condemned, once for his anti-Aristotelian heresies, once for his Calvinism. The languor of the retrograde spirit took possession of the University, and, with the University, of the colleges and schools of France, which depended on it. The one learned institution which imbibed the spirit of the Renaissance, which seriously established, for the first time in France, instruction in Greek and Hebrew, which kept meeting by the creation of successive chairs—chairs for mathematics, philosophy, medicine and surgery, anatomy and botany—the wants of the modern spirit, and which was spared by the Revolution when all the other public establishments for education were swept away,—the College of France,—this institution was a royal foundation of Francis the First's, and unconnected with the University. A few names like that of Rollin stand out in the annals of the University teaching of France, between the Renaissance and the Revolution, and command respect; but in general this teaching was without life and progress.

Schools of the Jesuits.

The Jesuits invaded the province long ruled by the University alone; by that adroit management of men for which they have always been eminent, and by the more liberal spirit of their methods they outdid in popularity their superannuated rival. Their first school at Paris was established in 1565, and in 1762, two years before their dissolution, they had 86 colleges in France. They were followed by the Port Royalists, the Benedictines, the Oratorians. The Port Royal schools, from which perhaps a powerful influence upon education might have been looked for, restricted this influence by limiting very closely the number of their pupils. Meanwhile the main funds and endowments for public education in France were in the University's hands, and its administration of these was as ineffective as its teaching. The only college whose pecuniary state was solid was the College of Navarre, and Navarre was administered not by the University but by the *Cour des Comptes*. The University had originally, as sources of revenue, the Post Office and the *Mes-*

sageries, or Office of Public Conveyance; it had long since been obliged to abandon the Post Office to Government, when in 1719 it gave up to the same authority the privilege of the *Messageries*, receiving in return from the State a yearly revenue of 150,000 livres. For this payment, moreover, it undertook the obligation of making the instruction in all its principal colleges gratuitous. Paid or gratuitous, however, its instruction was quite inadequate to the wants of the time; and when the Jesuits were expelled from France in 1764, their establishments closed, and their services as teachers lost, the void that was left was strikingly apparent, and public attention began to be drawn to it. It is well known how Rousseau among writers, and Turgot among statesmen, busied themselves with schemes of education; but the interest in the subject must have reached the whole body of the community, for the instructions of all three orders of the States General in 1789 are unanimous in demanding the reform of education, and its establishment on a proper footing.

The old schools abolished at the Revolution.

Then came the Revolution, and the work of reform soon went swimmingly enough, so far as the abolition of the old schools was concerned. In 1791 the colleges were all placed under the control of the administrative authorities; in 1792 the jurisdiction of the University was abolished; in 1793, the property of the colleges was ordered to be sold, the proceeds to be taken by the State; in September of the same year the suppression of all the great public schools and of all the University faculties was pronounced. For the work of reconstruction Cordorcet's memorable plan had in 1792 been submitted to the Committee of Public Instruction appointed by the Legislative Assembly. This plan proposed a secondary school for every 4,000 inhabitants; for each department, a departmental institute, or higher school; nine *lycées*, schools carrying their studies yet higher than the departmental institute, for the whole of France; and to crown the edifice, a National Society of Sciences and Arts, corresponding in the main with the present Institute of France. The whole expense of national instruction was to be borne by the State, and this expense was estimated at 29,000,000 of francs.

New plans.

But 1792 and 1793 were years of furious agitation, when it was easier to destroy than to build. Condorcet perished with the Girondists, and the reconstruction of public education did not begin till after the fall of Robespierre. The decrees of the Convention for establishing the Normal School, the Polytechnic, the School of Mines, and the *écoles centrales*, and then Daunou's law in 1795, bore, however, many traces of Condorcet's design. Daunou's law established primary schools, central schools, special schools, and at the head of all the Institute of France, this last a memorable and enduring creation, with which the old French Academy became incorporated. By Daunou's law, also, freedom was given to private persons to open schools. The new legislation had many defects. There was no provision for the reception of boarders in the central schools. There was no hierarchy of teachers; all the professors were

of equal rank and independent one of another. The country, too, was not yet settled enough for its education to organize itself successfully. The Normal School speedily broke down; the central schools were established slowly and with difficulty; in the course of the four years of the Directory there were nominally instituted 91 of these schools, but they never really worked. More was accomplished by private schools, to which full freedom was given by the new legislation, at the same time that an ample and open field lay before them.

Fourcroy's law (1802).

They could not, however, suffice for the work, and education was one of the matters for which Napoleon, when he became Consul, had to provide. Fourcroy's law, in 1802, took as the basis of its school-system secondary schools, whether established by the communes or by private individuals; the Government undertook to aid these schools by grants for buildings, for scholarships, and for gratuities to the masters; it prescribed Latin, French, geography, history, and mathematics as the instruction to be given in them. They were placed under the superintendence of the prefects. To continue and complete the secondary schools were instituted the lyceums; here the instruction was to be Greek and Latin, rhetoric, logic, literature, moral philosophy, and the elements of the mathematical and physical sciences. The pupils were to be of four kinds—*boursiers nationaux*, scholars nominated to scholarships by the State; pupils from the secondary schools, admitted as free scholars by competition; paying boarders, and paying day-scholars. Three Inspectors-General were appointed for these schools, who were to be assisted by three Commissioners taken from the Institute.

University of France. The present organization of the French secondary schools is founded under the first Empire.

The work now really began, and the present secondary instruction of France dates directly from the Consulate. The four greatest of the old schools of Paris were adopted, renamed,* and set to work. In the course of a year and a half 30 *lycées* and 250 secondary schools were started and in operation. More than 350 private schools received aid, while inspectors-general and members of the Institute traversed France to ascertain the educational condition of the country, and what were its more pressing requirements. The Normal School, the unique and best part of French secondary instruction, was launched at last; "a boarding establishment for 300 "pupils, for the purpose of training them in the art of teaching the "letters and sciences." In 1810 it was fairly at work. Meanwhile, from 1806 to 1808, Napoleon had established the centre in which all these schools, and all the schools of France, were to meet, the new University, the University of France. The freedom of teaching conceded by the Revolution was now withdrawn, for the control of the whole public instruction of France belonged henceforth to the University, no school being allowed to exist without the authorization of its Grand-Master, no schoolmaster to give instruction unless he was a member of the University and graduated

* The *Lycée Impérial*, the *Lycée Napoléon*, the *Lycée Charlemagne*, and the *Lycée Bonaparte*.

in one of its faculties. These faculties were five — theology, law, medicine, letters, mathematical and physical science. The grades were three—the baccalaureate, the licence, the doctorate. The licence answers to our degree of master of arts. Twenty-seven *academies*, or University centres, each with its rector, council, and staff of inspectors, were formed in the principal towns of France, and they carried on, under the authority of the grand-master at Paris, the administration of the University.

The University was not a mere department of that State, it was an endowed corporation. It had a revenue of about 2½ millions of francs. Of this the fixed part proceeded from a permanent charge, granted to the University, of 400,000 francs a year upon the public funds, and from the property, real and personal, of the old universities and colleges, so far as this property was still unappropriated and at the State's disposal. This latter source proved so inconsiderable that the average income accruing to the University from the whole of its landed estates did not exceed 16,000 francs a year. The variable portion of the University revenues was far the most important. This consisted of dues paid for examinations and degrees, and of a contribution, one-twentieth of the fee paid for their schooling, from all the scholars in the secondary schools of France. With these revenues the University paid the expenses of its administration, the expenses of its faculties, and the charge of the Normal School. The public scholarships founded in the lyceums and the insignificant contribution made at that time by the State towards the expenses of primary instruction were paid in the form of a subvention from the Minister of the Interior.

The French secondary schools under the Restoration and the Government of July 1830.

The legislation of the Empire accomplished little for the primary instruction of France, but the secondary instruction it established on a firm footing, and with the organization which in the main it still retains. In 1809 a statute restored to Greek and Latin their old preponderance in this instruction, effacing a mark which the Revolution, by the prominence given to scientific and mathematical studies, had left upon it. It thus resumed the mainly classical character common to it in the corresponding institutions all through Europe. In 1813 the Empire had thirty-six *lycées*, with 14,492 pupils, of whom 3,500 held public scholarships; in the private schools—if private they can be called, when their teachers had to be members of the University, their studies and discipline to admit University inspection, and their students to pay the University tax—there were 30,000 pupils. The Restoration changed the title of the public schools from *lycée* to that of *collège royal*, and made an important division of the subvention paid by the State to secondary instruction, assuring part of it to the maintenance of the public scholarships, part of it to the payment of the teaching staff. The whole of the subvention had hitherto gone to pay the scholarships endowed by the State. The teaching staff was paid out of the school-fees of the pupils. In the disasters of France the number of pupils in the schools fell off greatly, and their payments became irregular. The Government of the Restoration wished to secure

the position of the teaching staff, which had thus become very precarious. In order to effect this, it increased its subvention, but paid fewer scholarships than formerly, in order that it might pay teachers instead. The municipalities, as well as the State, had by the legislation of the Empire been bound to provide a certain number of scholarships in the *lycées*, with which they were locally connected. But the municipalities, and even that of Paris, had already, in the general pressure, resisted the obligation of providing their own share of scholarships; and when the State, reducing its own number of scholarships, left that of the municipalities unaltered, and besides ordered the prefects to see that they were regularly paid, the resistance grew stronger still. The government had to yield to it, and the number of scholarships at the charge of the municipalities was reduced by nearly one-half, while the reduction in the number of State scholarships was still maintained. The amount of free schooling in the French *lycées* was therefore seriously diminished. This diminution, however, was not ill suited to the circumstances of the time, and soon began to be viewed with favour. With the reviving prosperity of France families of the middle class became more and more capable of themselves meeting the moderate charge of their children's education; the higher class, about whose ability to pay there could be no question, but who had hesitated to avail themselves of the new public schools, began more and more to use them; and a class whom the prodigal supply of State scholarships had attracted to the State schools, a class without the means of purchasing from their own resources a liberal education, were, it was said, not proper recipients of such an education, were rendered useless and discontented citizens by it, and would be the better for being excluded from it. So strong was the feeling in favour of this exclusion, that at the very outset of the new and liberal Government of 1830, the report of a Commission recommended it to the Chamber of Deputies in urgent and even harsh terms. At the same time the better payment and the continued extension of the teaching staff in the public schools were desired on all sides. Under this impulsion the State grant for scholarships steadily declined, that for the teaching staff steadily increased. Between 1815 and 1830 that for the former sank from 988,000 francs to 822,300; that for the latter rose from 812,000 francs to 927,500. The Government of Louis Philippe, having undertaken the serious task of dealing with primary education, was unable at first to give much attention to secondary; when, however, M. Guizot's memorable law of 1833 had founded primary instruction, a succession of ministers set themselves to improve and develope the secondary schools. The number of *lycées* had risen, under the Restoration, from 34 to 40; under the Government of July it rose to 54. The contribution of the State to their support greatly increased. But the increase was entirely for the fixed expenses, as they are called, of the public schools, expenses in which the payment of the teaching staff forms the grand item. These, from 920,000 francs, which was their amount

in 1830, had risen, when the Revolution of February overthrew the Government of July, to 1,500,000 francs. The subvention for scholarships had fallen in the same period from 822,300 francs to 710,950 francs.

The University had been made by Napoleon an endowed corporation, and not a ministerial department, in order to give it more stability and greater independence. The grand-master was, however, to all intents and purposes, the Minister of Public Instruction, and when in 1824 the head of the University, M. de Frayssinous, took this title of minister, the change was one of name and not of substance. But the spirit of uniformity and method which the French bring to their system of public accounts is very strict, and gradually it began to be said that the University was in fact a public department with a special budget of its own, collecting and spending its revenues without supervision or responsibility, and that this was bad public economy. It was urged that the University ought to bring its estimates before the Chamber of Deputies, submit its accounts to the regular auditors of the national expenditure, and collect its revenues through the agency of the public collectors. The *Cour des Comptes* obtained an order to have the University accounts laid before it, and it found them irregular and unsatisfactory. In 1834, after a long discussion, the special budget of the University was suppressed, the collection of its revenues and the control of its accounts assimilated to that of the other public departments. It was left in the possession of its endowment and property, an honour more nominal than real, since it no longer had the management of them; but it was thought that by retaining, as the possessor of an endowment and of property, the character of a *personne civile*, it might attract bequests and fresh endowments,* of which a department of State had no chance.

* So many questions arise, in England, about endowed schools, that I will take this opportunity of saying what is the state of the law, in France, about endowments for education.

These endowments are of far less importance in France than in England. In the first place the Revolution made a clean sweep of all old endowments; what exist date from a time since the Revolution. In the second place the French law sets limits to a man's power of disposing of his property, which in England do not exist. In France by the *Code Napoléon* (Art. 913, and the articles following) if a man leaves one legitimate child, he may dispose of one half of his property, and no more, away from him; if he leaves two, he may dispose of one-third, and no more; if he leaves more than two, of one-fourth, and no more. If he has no children, a certain proportion of his property is similarly secured to his nearest representatives within certain limits. The amount of property free to be disposed of in benefactions is thus smaller in France than in England.

In England a man names an individual to be trustee, or a number of individuals to be trustees, to carry into effect a charitable bequest, on conditions assigned by him at pleasure. In France this cannot be done. A founder must entrust his bequest for charitable purposes to a *personne civile*, defined as an *être fictif auquel la loi reconnaît une partie des droits qui appartiennent aux personnes ordinaires, et qui peuvent recevoir des libéralités.* Such a *personne civile* must be either a public establishment (for instance, a public hospital, a parish church, a commune) or an establishment of public utility.

An establishment, not being a public establishment, can only be made an establishment of public utility, and capable therefore of receiving an endowment, by a decree of the Council of State, a body which prepares Government bills, and is, besides, the highest administrative body in France, to which the most important matters of adminis-

Its schools meanwhile continued to prosper, and had never been in so flourishing a condition as they were when the Revolution of February broke out. Their pupils, 9,000 in 1809, 15,000 in 1830, numbered 2,0000 in 1848. Their grant from Government at that time reached, as I have already mentioned, the sum of 1,500,000 francs; the sums received from scholars' fees for board and instruction exceeded 6,200,000 francs. The staff of professors and other school functionaries had never been so fully organized or so well paid. But the University had enemies whose attacks grew with time stronger and stronger; of these enemies the most persevering, passionate, and formidable were the clergy. Its lay character made it particularly obnoxious to them; they constantly assailed

Revolution of February, 1848. Change in position of the University of France. Organic school law of March 15, 1850.

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tration—conflicts between the different departments of State, questions of jurisdiction between the administrative and the judicial authority, &c.—are brought for final settlement.

The recipient, therefore, of an endowment must be a *personne civile*; but to enable even a *personne civile* to accept an endowment an express authorization of the administrative authority is in each case required, and the natural heirs are heard on the other side. They are not heard on any point of law; if any such arises it goes to the ordinary legal tribunals; they are heard on the question whether the bequest was a proper one for a man in the testator's condition of family and fortune to make. In some cases it is the prefect who gives this authorization, with the advice of the *conseil de préfecture*; in general, and always when there is opposition on the heirs' part, it is the Council of State.

Illegal, immoral, or impossible conditions attached to a benefaction or bequest, are by the law of France null and void. The Council of State calls upon the living donor to rectify such conditions before his benefaction can take effect; in the case of a bequest, authorization is given with reserve as to illegal conditions, which are set aside.

A bequest to an establishment for purposes not within the legal attributions of that establishment is thus set aside. For instance, if a bequest is left to a church for a school, it cannot take effect, because the law does not recognise school-keeping as an attribution of a church; so the Council of State authorizes the commune, which is by law a school-keeping establishment, to accept jointly with the church, and the commune manages the bequest.

Again, a bequest to an elementary communal school, saddled with the condition that the school shall be taught by the religious for ever, is set aside, because the school law of France gives to the communal and departmental authority the right of deciding for themselves whether a communal school shall be under lay teaching or the teaching of the religious. A condition giving to an authority other than that named by the school-law of France the nomination of a communal teacher, or the selection of the free scholars in a communal school, would be equally invalid. So would a condition forbidding a private school to be under Government inspection, or enabling it to be under an uncertificated teacher; because by the French law all schools, private as well as public, must admit inspection, and must have a certificated teacher. Private schools are at present not inspected as to their teaching; there is now before the Council of State a law for putting under inspection the teaching as well as the buildings, healthiness, morals, &c., of private schools which enjoy their endowment by virtue of an authorization.

It is to be remembered that public establishments and recognised establishments of public utility, have their rules of management for institutions depending upon them, which cannot be set aside by the directions of a testator. A commune is a public establishment, and the school of a commune follows a certain order of management fixed for such institutions. The congregation of the Christian Brothers is a recognised establishment of public utility, and the order of management of the Christian Brothers' schools is fixed by the statutes of the congregation, statutes which have had to obtain the Government's sanction.

In general, therefore, the action of founders is greatly limited in France, as compared with England.

A proper *personne civile* having been properly authorized to enjoy an endowment, the administrative authority does not further interfere. A man's heirs, however, may, if the legal conditions of his endowment are not complied with, bring an action before the ordinary legal tribunals for a restitution of the property to them.

it with the charge that it instructed and did not educate; they attacked its constitution, its studies, the orthodoxy of its teachers, and even their morality. It is difficult perhaps to find a perfectly precise sense for the charge that an institution instructs and does not educate, but it is well known with what great and damaging effect this charge can be used. The monopoly of the University made the charge the more dangerous, at the same time that this monopoly recruited the ranks of the University's chief assailants, the priests, with auxiliaries from quarters the most opposite, whose interests or whose principles it wounded. With the fall of the Orleans dynasty fell the privilege of the University. In 1848 the government of General Cavaignac struck the first blow at its academical organization, which had remained unchanged since the Emperor Napoleon's decree first founded it in 1808. The 27 academies, which had carried on the administration of the University for forty years, were reduced to 20. Then came the law of the 15th of March 1850, the organic law which now governs public instruction in France, and which transformed the regulation of this instruction completely. By this law persons not members of the University became free to open schools, and the exclusive privilege of the University ceased. The shadow of a corporate and endowed existence which had been left to it ceased also; its endowment no longer appeared as an item of the public debt, its estates were made part of the public domain. Eighty-six academies, one for each department of France, at first replaced the old academical organization of 1808; but very soon* these 86 academies were reduced to 16, each academy including in its district several departments; and this is the organization in force at the present moment.

The French secondary schools from 1850 to the present time.

Before I come to the schools as they now exist a few words must be given to the immediate effect produced upon them by the legislation of 1850. The unsettled state of the times, the derangement of many private fortunes, and the opening of a number of private schools, at first affected the *lycées* very unfavourably. The sums received from the pupils in them for board and lodging fell from 6,204,693 francs in 1848 to 5,191,666 francs in 1851. This diminution in the receipts, as the State refused to make it good necessitated a reduction in the payments to teachers and functionaries. With all the economy that could be exercised the embarrassment was great and increasing, when the government, in 1853, hit on the simple expedient of raising the fees for board and schooling, which had remained nearly stationary since they were first fixed in 1802. The fee for board in a Paris *lycée* had been 600, 700, 800, or 900 francs, according to the pupil's place in the school. It was now fixed at 950, 1,050, 1,150, and 1,500 francs. The fee for schooling, which had at first been a uniform fee of 60 francs, and then had been raised to 100 francs, was made, according to the subjects taught, 120, 150, 200, or 250 francs. Proportionate additions were made to the school charges in the departments, where these charges are always lower than in Paris.

* In 1854.

Far from emptying the public schools, this rise in their charges answered perfectly. The old charges had been very low, the new charges were not in themselves high, and were accompanied by an improved and developed programme of studies. The return of tranquillity and the growing wealth and prosperity of the country enabled families to support them the more easily. The *lycées* filled again, and the new scale of charges produced an addition of 800,000 francs in the yearly amount received from their scholars. In 1855 the number of *lycées*, which had been 54 before the February Revolution, had risen to 63; the number of pupils in them, which had fallen to 19,000 in 1851, had in 1855 increased to 21,219. The communal colleges at the charge of the towns where they are situated had been less successful. The law of 1850 required every town which wished to preserve its communal college to bind itself to pay for five years its teachers' salaries; several municipalities refused to saddle themselves with this obligation. Their colleges passed out of their hands into those of a private proprietor, generally an ecclesiastic; and thus out of the spoils of the communal colleges, though not out of those of the *lycées*, the new private schools which the law of 1850 admitted into existence did to a certain extent enrich themselves. In 1857 the communal colleges were only 244 in number, having been 306 in 1849; eight of the chief of them, however, had in the meanwhile been converted into *lycées*. The pupils in the communal colleges had numbered 31,706 in 1849; in 1855 they numbered only 28,219.

So the public secondary schools of France had, in 1855, in round numbers, 49,500 scholars. The total expenditure for these schools was (again in round numbers) 19,500,000 francs, or 780,000*l.* The expenditure for the *lycées* was 480,000*l.*, that for the communal colleges 300,000*l.* For the *lycées* the State contributed about 76,000*l.*;* for the communal colleges, which are municipal institutions, barely 4,000*l.* The State contribution for 1855 to French secondary instruction may be put, therefore, at about 80,000*l.*; the municipal subvention to the communal colleges amounted to nearly the same sum. There remained 620,000*l.* (216,000*l.* for the communal colleges, 404,000*l.* for the *lycées*) to be raised by the schools themselves. The State subvention, exclusive of the grant for scholarships, gave, in 1847,† an average of 28,900 francs for each of the 54 *lycées* then existing; in 1855, when the *lycées* numbered 63, the State subvention of the year gave an average of but 20,665 fr. for each *lycée*. The aid was insufficient even with the increased fees charged, and the total expenditure for 1855 on the *lycées* outran the total receipts by 354,052 francs, about 14,160*l.*

At the present moment France has 74 *lycées*, 20 more than she had in 1847, and 11 more than she had in 1855. She has 247 communal colleges, 59 less than she had in 1849, but three more than she had in 1857. In these schools she has 65,832 scholars; 32,794 in the *lycées*, 33,038 in the communal colleges. Thus the

* 1,301,908 fr. for the *dépenses fixes*, and 635,237 fr. for scholarships.

† In this year the subvention was 1,560,750 fr.

74 *lycées* have very nearly as many pupils as all the 247 communal colleges together. And while the number of pupils in the *lycées* tends to increase, and is about 1,000 more this year than last, in the communal colleges it tends slightly to diminish, and is about 100 less. The state schools have 15,000 more scholars than in 1855, a sign of the advance of the country in prosperity. The amount of state aid received by them is much higher than in 1855, a time of reduction and distress; it reaches, including the grant for state scholarships, 3,000,000 of francs in round numbers, a third more than in 1855, 120,000*l.* now to 80,000*l.* then. Of this sum the *lycées* receive 1,900,000 fr. for their fixed expenses, and 868,000 for bursarships;* the communal colleges receive 223,000 fr., having received less than 100,000 fr. in 1855. The mean rate of grant to each *lycée* is still, however, slightly below what it was in 1847, though nearly one-third greater than the rate of 1855. It is intended to place a *lycée* in every department of France, and five new ones are at the present time in progress.

Government, administration, and organization of the French secondary schools.

He who has seen one *lycée* or communal college in France, I will not say has seen all, but at any rate may consider that he can form for himself a pretty accurate notion of all. In all, the course of studies is very nearly the same, following programmes drawn up by authority. In all, the books used are very nearly the same, specified in a list drawn up by authority. In all, the professors and principal functionaries of every kind are appointed by the Minister of Public Instruction and can be dismissed by him. In all, the arrangement and training of classes, the arrangements for boarding, the hours of work and recreation, the means of recreation, the mode of government, and the whole system of discipline, are the same.

Ministry of Public Instruction.

The Minister of Public Instruction is the head of this vast organization. His office, in Paris, has six divisions, under himself and his secretary-general. Each of these six divisions has its chief, and is divided into two bureaux, each, again, with its head. First come the three divisions for superior instruction, secondary instruction, primary instruction. The first bureau of each of these is for the *personnel* of the branch of public instruction administered by the division—treats, that is, all matters relating to persons, appointments, and studies; the second bureau is for the *matériel* and *comptabilité*—whatever relates to buildings, finance, or accounts. The three remaining divisions have charge, one, of the department's business with the Institute and with the public libraries; another, of its business with the scientific and literary establishments (such as the Museum of Natural History, the French school at Athens, the observatories of Paris and Marseilles, &c.) in connexion with it; the third, of the expense of the central office, and of the general revision of the whole finance and accounts of the department. Under the Minister's presidency is the Imperial Coun-

* The actual number of bursarships in the French *lycées* is now 1,057, divided among 1,588 holders. It is worthy of note that the ten colleges of Paris alone, before the Revolution, had 1,046 bursars, almost the number of the bursarships for the whole of France at present.

cil of Public Instruction, which in concert with him fixes the programmes of study in the state schools and the books to be used in them. It is also consulted as to the formation of new state schools, and as to the whole legislation and regulation of French public instruction. The important measures which have lately been introduced and passed for the furtherance of professional instruction, as it is called - measures of which I shall have to speak presently—were all of them thus brought by M. Duruy, the present minister, before the Council, and there discussed. Certain members of the Council formerly proceeded from election; in 1852, under the pressure which then caused, in France, the strengthening of the hand of government everywhere, proposal by the Minister of Public Instruction and nomination by the President of the Republic was substituted for election in these cases. The Emperor still nominates on the Minister's proposal; but M. Duruy's disposition has certainly been rather to enlarge the part of action for others than to keep all action for himself; thus he has lately given to the functionaries of public instruction, whom the law of 1852 gave him the power to dismiss off hand, the security of a committee of five, chosen out of the Council of Public Instruction, by whom the case of the functionary whose conduct may be in question is to be examined, his defence heard, and the merits of the case reported on.

Imperial Council of Public Instruction.

But the names of the actual members of the Council guarantee its fitness for its functions, whether it comes from election or from nomination. The Minister is the President, and M. de Royer, the Chief President of the *Cour des Comptes*, is Vice-President. The great bodies of State are represented, so is the Church, so are the Protestants, so are the Jews, so is the law, so is the Institute, so are the schools, public and private. There are 32 members, with a secretary; and among them, not to speak of the great official personages, are M. Franck, M. Silvestre de Sacy, M. Guigniaut, M. Milne Edwards, M. Michel Chevalier, M. Ravaisson, M. Dumas the chemist, M. Le Verrier, and M. Nisard. It will not be disputed that these are men whose opinion on matters of instruction may with propriety and advantage be asked.

Academic Councils.

After the Imperial Council come the Academic Councils. By the law of 1854, as I have said, the number of the academies, or University centres, was fixed at 16. They are now, by the addition of academies for Savoy and Algiers, 18. The Minister of Public Instruction is the titular Rector of the Academy of Paris, and the ordinary functions of the rectorate are in this academy discharged by the Vice-Rector. In the other academies they are discharged by the Rector, who must have the degree of doctor in one of the faculties, and who is the head of the superior and secondary instruction of the departments which form the district of his academy, and the president of the academic council. The main control of primary instruction, including the right of nominating the schoolmasters, was in 1854 by a change made from political reasons, but which nearly all friends of education condemn, taken away from the rectors and given to the prefects. The rectors

are assisted by academy inspectors, of whom there must be one at least (at Paris by a special rule there are eight) for each department comprised in the academy. As there are only 17 academies for France, most of them, of course, have a district of several departments; the academic centre, the residence of the rector and the seat of the faculties, is in general placed in the most important chief town of their departments. In the other departments of the district the academy inspectors exercise in fact the functions of rector, having their offices in the several chief towns, entering the names of candidates for degrees in the different faculties, and inspecting the public schools. All their reports on these schools converge, however, to the centre of the academy, to the rector's office; and from these reports, from the reports of the immediate authorities of the schools, and from his own inspections, the rector makes up the monthly report which he is bound to transmit to the Minister in Paris. With the rector is placed, to form his council, not only the academy inspectors of his district, but also the deans of faculties, and seven other members chosen every three years by the Minister. These seven are an archbishop or bishop from the district, two ministers of the Catholic, Protestant, or Jewish worship, two members of the magistrature, and two public functionaries or other notables of the district. The well-known M. Coquerel is thus a member of the academic council of Paris, and M. Devienne, the First President of the *Cour Impériale*, is another. This council consists of some 30 members in the academy of Paris, where the academy inspectors are very numerous; in the other academies it consists of from 15 to 20 members. It holds two sessions a year, lasting about a fortnight each, when it receives reports from the academy inspectors and deans of faculties on the whole instruction of the district, and deals with all questions which come before it respecting the administration, finance, discipline, or teaching of the public schools.

Departmental Councils.

There is also, for each department of France, a Departmental Council, of which the prefect is president, and the academy inspector, a primary inspector, the bishop and an ecclesiastic named by him, a representative of the Protestant and of the Jewish communions, the chief law-officer of government in the department, a judge, and three or four members of the Council General,* are members. The primary inspector, the Protestant and Jewish representatives, the judge, and the members of the Council General, are named by the Minister of Public Instruction. This departmental council has to do with primary rather than secondary instruction; with the public secondary schools it does not meddle, but certain matters affecting the private secondary schools come before it from the academic authority, with appeal to the Imperial Council of Public Instruction in Paris. Of these matters I shall speak by-and-by. The departmental council meets twice a month.

Inspectors-general.

Besides the Minister, the Imperial Council, and the academic authorities, six inspectors-general have special superintendence

* The Council General is an elective body consisting of the notables of the department.

of secondary instruction. Three of these inspectors are for letters, three for sciences; every year they are sent by the Minister on tours of inspection, and they visit the *lycées*, the more important communal colleges, and a certain number of private secondary schools.

Administration of the French *lycées*.

Now I come to the *lycées* themselves. Their administration, properly so called, is in the hands of a provisor, a censor, and a steward, who themselves take no part in the teaching, but who admit the scholars, correspond with the parents, keep the accounts, manage all the household economy, superintend the discharge of his duties by each member of the establishment, and maintain the discipline. There are also two or more chaplains, and the great *lycées* of Paris, which receive a very large number of boarders, have also a certain number of officers with the title of General Superintendents attached to the governing body. To all French *lycées* is attached a council of administration, revising the conduct of their business affairs, and each academy has a Commission of Health, charged with the care of the sanitary interests of the establishments of public instruction in the academic district. A Central Commission of Health exists for the special benefit of the Paris *lycées*. But, in general, the governing and administering body in a French *lycée* consists of these three functionaries—the *proviseur*, who is the chief of all, the *censeur*, and the *économe* or steward. Then come the teachers, professors of different degrees of rank. Then the *maîtres répétiteurs*, on whom falls the task of that constant supervision of the boys out of class hours, for which French schools have with us in England such a notoriety. The professors give their lessons and are then free to depart. They have nothing whatever to do with the boys out of school hours. The *maîtres répétiteurs*, or *maîtres d'étude*, as they are more generally called—the ushers, as we should call them—are with the boys when they are preparing their lessons, and at their meals, and at their recreation, and in their dormitories. The highest class of these ushers assists the boys in the preparation of their lessons; a lower and far larger class is inadequate for this task of tutor, and is simply charged with the duty of superintending and reporting.

Regulations as to their functionaries and professors.

All these functionaries, from the *proviseur* to the *maître d'étude* are nominated by the minister. The *proviseur* and the rector, indeed, present for the minister's acceptance candidates for the post of *maître d'étude* and of teacher of the lower classes in the communal colleges; and the rector has to keep a record of service and seniority among the professors in the *lycées* of his academy, which record, no doubt, guides the minister in making his nomination. Still the mass of patronage vested in the minister must appear to our eyes extraordinary. But it is right to say that the law in France, has imposed conditions on the minister's exercise of his patronage which inevitably keep it within strict bounds. As the rector must be a doctor in some faculty, and the academy-inspector must be a licentiate (intermediate between a bachelor and a doctor, and answering to our master), so each functionary of

the *lycée*, from the *proviseur* to the *maître d'étude*, must present some guarantee of intellectual capacity. The *proviseur* must be a licentiate. The *maître d'étude* must be a bachelor of letters or sciences. But it is for the professor's office that the most stringent security is required. To be a full professor (*professeur titulaire*) the title of *agrégé de lycée* is necessary. We have nothing corresponding to this in England. It is not a university grade but a special certificate or diploma. The examination for it requires the possession of a university grade, and covers the whole ground of the intended professor's teaching. The title exists for superior instruction also; there are *agrégés de faculté* as well as *agrégés de lycée;* to be full professor in a faculty, indeed, guarantees beyond the *agrégation* (for example, the rank of doctor or of member of the Institute) are demanded; but even to be acting professor (*professeur suppléant*) in a faculty, the title of *agrégé* in that faculty must be obtained; and to obtain it the candidate has to pass a strict examination in the matters which he will have to teach.

Aggregation.

The *agrégés de lycée* are of seven orders, corresponding to the kinds of instruction given in the *lycées*. There are *agrégés* for the classes of mathematics, of natural science, of philosophy, of higher classics, of lower classics, of history and geography, of modern languages. To be an *agrégé* for any one of them the candidate must be 25 years old, and must have had five years' practice of teaching in a public or private school. A certain maturity and experience are thus ensured at the outset. Then the intending *agrégé* for the classes of mathematics must possess the degree of licentiate of mathematics, and that of licentiate either of physics or of natural science; for the classes of natural science the same; for the classes of philosophy, the degree of licentiate of letters (master of arts), and that of bachelor of science; for the higher classical division, the degree of licentiate of letters; for the lower, the same; for the classes of geography and history, the same; for those of modern languages, a certificate of fitness (obtained only after examination) to teach them.

These preliminary securities being taken, the candidates undergo a written examination. If they fail in the written examination they are rejected If they pass in it, they proceed to a *vivâ voce* one. In every case the examination is based on the programme of the classes for which the candidate wishes to become *agrégé*, and the oral examination includes one or more lessons delivered as if to a class. The programmes of the different classes are, as I have already said, fixed by authority; in an appendix I will print one or two of them, to enable the Commissioners to judge for themselves what the examination in mathematics, for instance, or in physics and natural science, must be. I will just mention in passing what the candidate for the *classes supérieures de lettres* (higher classical division) has to do. His paper-work consists of a piece of Latin verse, a piece of translation from French into Greek and Latin, a piece of translation from Greek into French,

a Latin essay and a French essay, one on a philosophical the other on a literary subject, and a piece of translation into French from a modern language, English or German. In his *vivâ voce* he has to correct aloud two exercises of boys in the higher classical division of a *lycée*, to translate with full comments and explanations a passage from a Latin and Greek author read in the *lycées*, and to comment on a passage from one of the French classics read there. He has also to translate a passage from an English or German book. Finally, he has to give, as if to a class, a lesson on either grammar, classical literature, philosophy, history, or modern languages, at his own choice.

Having proved his fitness by his examination, the candidate is then nominated professor in a class of the order for which he has obtained the title of *agrégé*. But he cannot be employed in a class of another order without obtaining by examination the title of *agrégé* for that class; thus an *agrégé* for the higher classical division cannot be employed in a mathematical or scientific class, nor can an *agrégé* for the lower classical division be employed in the higher. The spectacle so often seen in English schools of a classical master teaching, without any real acquaintance with his subject, mathematics, or modern languages, or history, is not to be seen in France.

The Normal School.

The pupils of the Normal School (*École Normale Supérieure*) can hold the place of professor without being *agrégés;* but they cannot hold the more important and better paid post of *professeur titulaire* without this test, they can only be divisional,* acting, or assistant professors (*professeurs divisionnaires, suppléants,* or *adjoints*). And the examinations of the Normal School are in themselves a test, and a very strict one, of the fitness of its pupils for their business. I have already mentioned this admirable institution; it enjoys a deserved celebrity out of France as well as at home, and nowhere else does there exist anything quite like it. Decreed by the revolutionary Government, and set to work by that of the first Napoleon, it had two periods of difficulty—one under the Restoration, when it attracted hostility as a nest of liberalism, and it was proposed to abate its importance by substituting for one central Normal School several local ones; another after the revolution of February, when the grant to it was greatly reduced, and the number of its pupils fell off. But it has now recovered its grants and its numbers, and few institutions in France are so rooted in the public esteem. Its main function is to form teachers for the public schools. It has two divisions, one literary the other scientific. Its pupils at present number 110; they are all bursars, holding a scholarship of 40*l.* a year, which entirely provides for the cost of their maintenance. The course is a three years' one; but a certain number of the best pupils are

* The full professor (*professeur titulaire*) has the *class;* the class, if large, is divided, and the divisional professor has charge of a division, as contradistinguished from a class.

retained for a fourth and fifth year; these, however, are lost to the secondary schools, being prepared for the doctorate and for the posts of superior instruction, such as the professorships in the faculties.

Every Englishman who has been at Oxford or Cambridge must in France remark with surprise that institutions like these, taking a young man at the age of 18 or 19, and continuing his education, with the shelter of a considerable, though modified, control and discipline till the age of 23 or 24, seem to be there, for laymen, quite wanting. It is true that in France, as in Germany, there is a superior instruction, a faculty instruction, much more complete than ours, and that our Oxford and Cambridge are, in fact, as Signor Matteucci, who has studied them well, said to me at Turin, not establishments of superior instruction at all, but simply *hauts lycées*. This is true, and it is to be regretted that we have not a better organized superior instruction; still Oxford and Cambridge, in prolonging a young man's term of tuition and prolonging it under discipline, instead of his being thrown at large on the life of a great city, Paris or London, where he follows lectures, are invaluable, and it is in this direction that foreigners may find most to envy in English education. But it must be remarked that there are great government schools in France which in some measure perform the part of Oxford and Cambridge, and supply yearly a body of laymen whose intellectual training has been prolonged, under stringent discipline, for several years beyond boyhood; a body sufficient, even in itself, to keep society fed in the several departments of practice and knowledge with a number of intellectually-trained men of a high order, and to preserve the intellectual level from sinking. The Polytechnic School, which trains civil as well as military engineers for the State, the *École Forestière* (School of Woodcraft) the *École Impériale des Chartes*, the *École Française d'Athènes*, are all of them establishments discharging this function. But the chief of the establishments which discharge it is the *École Normale Supérieure*. This school is in the Rue d'Ulm, in the old school quarter of Paris on the left bank of the Seine, where the Sorbonne, and by far the greater part of the *lycées* and centres of instruction, secondary and superior, are still to be found. The building is large and handsome, something like one of the more modern colleges at Oxford or Cambridge; it has chapel, library, and garden; the tri-colour flag waves over the entrance to it. Everything is beautifully neat and well kept; the life in common which economy compels these great public establishments, in France, severely to practise, has—when its details are precisely and perfectly attended to, and when, as at the *École Normale*, the resources allow a certain finish and comfort much beyond the strict necessary of the barrack or hospital—a more imposing effect for the eye than the arrangements of college rooms, though I am far from saying the life in college rooms is not preferable. The pupils, even here, sleep in large dormitories, but the beds are screened

from one another by partitions stopping short of the ceiling, in the fashion adopted in some of the more recent Normal Schools for our primary teachers here in England; each student has thus a small chamber to himself.

Last year 344 candidates presented themselves for 35 vacancies, and these candidates were all picked men. To compete, a youth must in the first place be over 18 years of age and under 24, must produce a medical certificate that he has no bodily infirmity unfitting him for the function of teacher, and a good-conduct certificate from his school. He must enter into an engagement to devote himself, if admitted, for 10 years to the service of public instruction, and he must hold the degree of bachelor of arts if he is a candidate in the literary section of the school, of bachelor of science if in the scientific. He then undergoes a preliminary examination, which is held at the same time at the centre of each academy throughout France. This examination weeds the candidates; those who pass through it come up to Paris for a final examination at the *École Normale*, and those who do best in this final examination are admitted to the vacant scholarships. A bare list of subjects of examination is never very instructive; the Commissioners will better understand what the final examination is if I say that the candidates are the very *élite* of the *lycées*, who in the highest classes of these *lycées* have gone through the course of instruction, literary or scientific, which is represented by the programmes printed in the appendix to this report. In the scientific section of the Normal School, the first year's course comprehends the differential and integral calculus, and the Commissioners know what advanced progress in the pupil such a course implies. By a favour which has been very rarely accorded even to authorized inquirers, and for which I am very grateful, I was permitted to be present at several of the lessons of the school, and I can answer for the preparation and attention of the pupils and for the excellence of the teaching. Better lessons than those which I heard on Lucretius's account of the plague at Athens, on some chapters of Thucydides, and on the *Femmes Savantes* of Molière, better, whether as respects the lecturer's performance or the student's, I really cannot imagine. I also heard a mathematical lesson; on the merits of such a lesson I am unfortunately—and it is a misfortune I had continually to regret while discharging my errand—most incompetent to give an opinion; but here too I could see and admire the evident easy mastery of the lecturer over his subject, the rapidity with which he went, his constant and dexterous use of the black board; while his hearers seemed all to be held in hand, and to follow with a quickness and adroitness answering to his own. In the third year there is a division in the scientific section, some pupils giving their chief study to pure mathematics and astronomy, others to physics and natural science.

I found, as I have said, 110 pupils in the Normal School, all bursars; commoners, to use our expression, are not received. For these 110 students there are, besides the director-general and a

director of scientific studies, and another of literary studies, 23 professors, or *maîtres des conférences*, as in this institution they are called. These professors are pretty equally divided between letters and science. One of the most distinguished professors of the scientific section told me that in this section they were a little under-officered, and that it would be better if certain of the scientific lectures, which the students now have to go to the Sorbonne to hear, where the wants of the audience are not the same as theirs, could be given at the school itself, and by professors of the school. This really was the only drawback I could hear of to the complete efficiency of the school, and this, of course, was due to the common cause of such drawbacks, want of funds. The cost of the school last year was 307,610 fr.; in round numbers, 12,300*l.* The library, laboratory, and collections seemed to me excellent.

The pupils have half-yearly examinations, and they are practised to some extent, and, under the present Minister, M. Duruy, more than ever before, in the *lycées* of Paris. The teaching of the professors keeps always in view the scholastic destination of their hearers. At the end of the third year's course the student who has passed through it with distinction is authorized to present himself at once for aggregation. Five years' school practice, it will be remembered, is required of other candidates. The less distinguished student is at once nominated to a *lycée*, but to the post of assistant professor only, not of full professor; after one year's service in the capacity of assistant professor he may present himself for aggregation.

Position and payment of teachers in the French *lycées*.

I have been somewhat minute in describing how the body of professors in the French public schools is formed, because the best feature of these schools seems to me to be their thoroughly trained and tested staff of professors. They are far better paid than the corresponding body of teachers in Italy; they have a far more recognized and satisfactory position than the corresponding body of teachers in England. The latter are, no doubt, better paid; but, with the exception of the head masters of the great schools, who hold a position apart, who need eminent aptitudes for other things besides teaching, and who are very few in number, they form no hierarchy, have no position, are saddled, to balance their being better paid, with boarding-house cares, have little or no time for study, and no career before them. A French professor has his three, four, or five hours' work a day in lessons and conferences, and then he is free; he has nothing to do with the discipline or religious teaching of the *lycée*, he has not to live in its precincts; he finishes his teaching and then he leaves the *lycée* and its cares behind him altogether. The provisor, the censor, the chaplains, the superintendents, have the business of government and direction, and they are chosen on the ground of their aptitude for it. A young man wishing to follow a profession which keeps him in contact with intellectual studies and enables him to continue them, but who has no call and no talent for the trying post of teacher, governor, pastor, and man of business all in one, will hesitate before he becomes a master in an English public school, but he

may very well become a professor in a French one. Accordingly the service of public instruction in France attracts a far greater proportion of the intellectual force of the country than in England. At the head of the Normal School which I have just been describing is M. Nisard, a member of the French Academy, and the well-known author of a history of French literature; the director of the scientific studies is M. Pasteur, a member of the Institute, and one of the first chemists in Europe; among the *maîtres des conférences* is M. Gaston Boissier, whose name English readers of the *Revue des Deux Mondes* will recall as the author of some excellent articles on Roman history which lately appeared there; M. Boissier is also one of the professors at the *Lycée Charlemagne*. In the scientific section is M. Hermite, whose name every mathematician knows; M. Hermite is a member of the Institute. But besides names thus widely known, the professorate of the Normal School and the *lycées* abounds in names honourably known in their own country as borne by men of mark and honourable performance or honourable promise in their several departments of science or literature; such are the names (I quote almost at random) of MM. Briot, Berger, Bénard, Jules Girard, Étienne. Two of the most eminent of living Frenchmen, M. Cousin and M. Villemain, were originally professors in the French public schools; they have both also been Ministers of Public Instruction, and M. Duruy, the present Minister, was a professor, an author of a very good school book, and an inspector. M. Taine and M. Prévost-Paradol, personages so important in the French literature of the present day, were both of them distinguished pupils of the Normal School. It is clear that this abundance of eminent names gives dignity and consideration to the profession of public teaching in France; it tends to keep it fully supplied, and with men who carry weight with the pupils they teach, and command their intellectual respect. And this is a very important advantage.

The salary of a professor is composed of two parts, the fixed part and the eventual part, as they are called. The fixed salary of a full professor is, at Paris, 4,500, 4,000, and 3,500 fr., according to the division in which the professor is placed; in the departments, 2,400, 2,200, and 2,000 fr.* The fixed salary of a divisional professor is in Paris 1,800 fr. or 1,200 fr.; in the departments it is 1,200 fr. The eventual salary used to be formed by taking nine hundredths of the fee for board and schooling paid by each boarder, and five-tenths of the fee paid for schooling by each day boy. The sum obtained by taking these fractions was in every *lycée* divided between the censor and the professors, and the share received by each was the eventual part of his salary.† But since 1862 the

* There may be in Paris 30 professors at the first-named rate at a time, 35 at the second, any number at the third. In the departments, 133 at the first rate, the same number at the second, any number at the third.

† Formerly the divisional professors had no share in the *traitement éventuel*, but they are now admitted to a share in it.

traitement éventuel has been fixed at a uniform sum of 3,000 fr. for professors in Paris; for those in the departments it is more than one half less. A professor also receives certain fees for examinations and conferences, and often he gives a certain number of private lectures. I was informed that from all these sources the income of an able Paris professor of the first rank in his calling reached very nearly 10,000 fr. (400*l.*) a year. For my own part I would sooner have this, with the freedom and leisure a French professor has with it, than 800*l.* a year as one of the under masters of a public school in England.

The divisional professors are poorly paid, especially those in the departments, but it is to be said that their condition is, or ought to be, one of passage only; they are on their road to the aggregation and the post of full professor. Meanwhile they, too, may turn their spare hours to account for the benefit of their income.

The position of the great body of the *maîtres d'étude* or *maîtres répétiteurs* is more discouraging. They are extremely numerous; the system of supervision practised in the French schools makes it necessary that they should be so, and their number of course renders it impossible that they should be well paid, or that many of them should rise to the higher posts of the profession. Some of them rise, and distinguished men have begun their career in the post of usher; while superintending the *études*, or workrooms in which the boys prepare their lessons, the usher may be carrying on his own studies for the aggregation, for which a five years' practice in teaching is one of the preliminary conditions, and service as an usher, even of the humblest grade, counts. To rise in this way through the aggregation to the professorate is of course in theory the true career of the usher; the majority of them, however, fail to achieve it, and their regular line of promotion is to become *regents* in a communal college. There are three classes of them—aspirants, second-class ushers, first-class ushers. An aspirant must be 18 years old, and must have the degree of bachelor of arts or science; a second-class usher must have served for a year as aspirant; a first-class one must have served a year in the second class, and that, if he has the degree of master of arts or science, is sufficient; if he has not this degree, he must have served in the second class five years, three of them in the same *lycée*. The higher order of ushers may hold the post of master in the lowest or elementary division of the school, or may be employed to supply the place of an absent professor; they also may act the part of tutor by explaining to the boys in their *étude* any difficulty in their lessons and by helping them forward with them; of course in the higher part of the school an ordinary *maître d'étude* has not the attainments necessary for such a task as this. An usher acting as master receives in Paris about 60*l.* a year, in the departments from 40*l.* to 50*l.*; the three grades of ushers not in charge of forms receive from 30*l.* to 50*l.* in Paris, from 25*l.* to 40*l.* in the departments. It is to be remembered that they have in the *lycée* their board and lodging free, and those of them who, being masters of the lower forms, are

not required to live in the *lycée*, have an allowance of about 20*l.* a year towards their board and lodging.

The Paris *lycées* no doubt get the best of the *maîtres répétiteurs*, and employ those of the highest grade; I was struck with the generally decent address and appearance of those whom I saw there, and everywhere I was inclined to wonder that for such a post at such a stipend the schools could supply themselves as well as they did. Of course it is not easy to induce the authorities to own that the *maître d'étude*, who is such an indispensable ingredient in that system of constant supervision which they think necessary, is and must be a weak part in it, and a stranger has few means of penetrating in such a matter below the surface; but I am inclined to think, chiefly, I own, from what I have heard from English boys brought up in French schools, that among these many *maîtres d'étude* there is a large stagnating mass in which there is much corruption and much mischief, and that from this mass a great deal that is noxious distils among the boys they are set to overlook, though perhaps the contempt with which the boys are apt to regard the usher makes his influence for harm somewhat less than it might otherwise be. The boys who spoke with disgust and contempt of the body of *maîtres d'étude* spoke, I must add, with great respect of that of professors.

To conclude this account of the governing and teaching staff in a French public school, I must add that their nomenclature in a communal college is somewhat different from that in a *lycée*. The director of a communal college is called the *principal*, not the *provisor*; the masters are called *regents*, not *professors*. The principal must have the degree of bachelor, and so must the regents; in those colleges which give the full course of secondary instruction the regents charged with the higher parts of this course must be licentiates.

After the teachers I come to the matters taught. The programme of the French public schools is, as I have said, fixed by authority; the arrangement of classes and studies is the same in all. A *lycée* has three divisions—an elementary division, a grammar division, and a superior division called often *division for humanities*. The classes, unlike those in our great public schools, have for their highest class not a *sixth* but a *first*. The lowest class is the *classe de huitième*; boys are admitted to it very young, as young as seven years of age, if they can read and write; but even before this class the *lycées* are authorized to place a preparatory class, not numbered, in which the instruction given is mainly that of primary schools,* and does not include Latin. Here children of six years of age are admitted. The very good exercise of learning by heart from the classics of the mother tongue begins even in this preparatory class, and is continued to the top of the school. Latin begins in the *classe de huitième*, and is carried further in

* Primary instruction may be given by a primary schoolmaster, but he must hold unless he has the degree of bachelor, the full certificate of a primary teacher.

septième. After *septième* begins another division, that of grammar. It is obvious that when boys are admitted at six or seven years old a serious examination at entrance is out of place; but after the elementary division a boy's access to each division is guarded by an examination, which turns, of course, on the matters taught him in the division he is leaving. The lowest class in the division of grammar is *sixième*, the sixth form in the school, according to the French way of reckoning. Here begins Greek, and also the study of the modern languages. These may be English, German, Spanish, or Italian, according to the wants of the localities and the wishes of the parents, France having a frontier either in contact or in close proximity with all these languages. It may wound an Englishman's vanity to find that the pre-eminence given in the schools of his own country to French is not given in France to English; in the *lycées* of Paris, German and English pretty nearly divide the pupils, the advantage resting, however, with German; partly because this is the native language of important provinces of France; partly because it is of more use to military students, which many boys in the *lycées* are going to be; and partly, no doubt, because in the scientific and intellectual movement of Europe at present England counts for so little and Germany for so much. In Germany, where French is obligatory, as with us, in the schools, and where English is optional, one cannot hear without a little mortification the two languages classified as, the one, the *handel-sprache*, the other, the *cultur-sprache;* English is the *handel-sprache*, learnt for mere material and business purposes; the *cultur-sprache*, learnt for the purposes of the mind and spirit, is French.

Drawing and singing are likewise obligatory matters of instruction in the French *lycées*, and are not paid for as extras. Two hours a week are, on an average, given to each. The programmes regulating this instruction I print at the end of my report. Drawing is taught as a matter of science, not of amusement, and the pupil is carried through a strict course from outline up to ornament and model drawing.

The fifth class (*classe de cinquième*) reads our old friend Cornelius Nepos, but it reads also authors not much, I think, in use in our schools—Justin, Ælian, and Lucian. The division of lessons is the same here and in the sixth class; ten *classes*, as they are called, a week, and two hours of singing, one of drawing, and two of gymnastics.* A class lasts two hours; so this gives (not counting gymnastics) 24 hours of lessons in the week. The classes are thus divided: seven classes and a half (15 hours) for classics; one class (two hours) for history and geography; two half classes (two hours) for modern languages; one half class (one hour) for arithmetic. The weekly number of classes remains the same all through the school; but the proportion of time given to

* Gymnastics form part of the regular course in the *lycées*, and are not charged, for as extras.

classics and to other subjects varies, and so does the amount of additional lessons.

In *quatrième*, the head form of the grammar division, Latin prosody in the classical instruction, geometry in the scientific, appear as new subjects. An hour less is in this form given to classics, an hour more to mathematics. An hour more than in the two forms below is here given to drawing.

Another divisional examination, and the boy passes into humanities. Of the *division supérieure* (humanities), the lowest class is *troisième*. Here Latin verse begins, and here, for the first time in the school, Homer appears. Among the books read in extracts by this form, and not commonly read, so far as I know, in our schools, I notice Terence, Isocrates, Plutarch's *Morals*, and the Greek Fathers. Mathematics now get four hours a week; history, which we have just seen dividing its class with geography, gets the whole two hours; geography and modern languages become additional lessons, the first with one hour a week, the second with two. Music is reduced to one hour. The number of lesson-hours in the week (still not counting gymnastics) has thus risen from 24 to 26.

In *seconde*, the same proportion between science and letters; but in science the programme is now algebra, geometry, and natural history, instead of arithmetic and geometry. The distribution of additional lessons remains the same. The *Agricola* of Tacitus, the easier dialogues of Plato, the easier orations of Demosthenes, appear among the books read.

Then the boy rises into our sixth form, called with the French from old time not first class, but *Classe de rhétorique*. The classics read are much what would be read in our sixth form; but in the mother-tongue the pupil studies the *Pensées* of Pascal, the *Oraisons funèbres* of Bossuet, La Bruyère, Fénelon's *Lettre à l'Académie Française*, Buffon's *Discours sur le Style*, Voltaire's *Siècle de Louis XIV.*, Boileau's *Art Poétique*, and La Fontaine's *Fables*. Even the selection of a body of English classics like this, excellent in themselves and excellently adapted for the purposes to which they are destined, is a progress which English public instruction has yet to make. Letters have eight out of the 10 classes in *rhétorique*, which is the great classical form of the school. Sciences have only one class, divided between geometry and cosmography; but, with an object which I shall notice presently, an additional lesson of an hour in the week has been established for the benefit of those pupils who desire to refresh their knowledge of the scientific instruction given in *seconde* and *troisième*. Otherwise the lessons occupy the same number of hours as in those two classes.

But now, after the great classical form of *rhétorique*, comes a crowning of the edifice which we have not, and which in some degree, perhaps, represents that part of education which with us the student gets later, at the University. This is the class of *logique*, or, as it is now officially called, of *philosophie*. The

design of this class is thus summed up by the present minister, M. Duruy: general revision of the classical and scientific studies of the three previous forms; instruction in physics; and, above all, as the two characterising studies of this class, philosophy,—making the pupil busy himself with the substance of ideas as in rhetoric he busied himself with their form and developing his reflection as rhetoric developed his imagination and taste,—and contemporary history. The programme of the course of philosophy divides the subject thus—introduction, psychology, logic, moral philosophy, theology, history of philosophy.* That of the course of contemporary history goes from 1815 to the present time; the professor has to introduce it with a "rapid summary of "the general facts which have modified, from the 15th century "onwards, the ideas, interests, and constitution of European "society." He concludes it with "France's share in the general "work of civilization." The programme is a skilfully constructed framework, capable of being by a good teacher so filled up as to make the course very interesting and useful. In *philosophie*, its design being such as I have stated, Greek and Latin of course lose their preponderant share in the classes. In the ten classes they have now, indeed, only so much share as the language of four out of the nine authors read, Xenophon (*Memorabilia*), Plato (*Gorgias*), Cicero (*De Republica*, *Tusculans* and *Offices*), and Seneca (select letters), gives them; the remaining five are French, and the books are: the Port Royal Logic; the *Discours de la Méthode* of Descartes; Pascal's *De l'Autorité en matière de Philosophie*, his *Réflexions sur la Géométrie en général*, and his *De l'Art de Persuader;* Bossuet's *Traité de la Connaissance de Dieu et de Soi-même;* and Fénelon's *Traité de l'Existence de Dieu.* But two hours of additional lessons in the week are given to going over the pupil's former classical work, and to Latin composition. The essay, Latin and French, appears for the first time in this form. Sciences now get the large share of five classes a week (10 hours). To algebra, geometry, and cosmography, are now added physics and chemistry.

To pass through a form takes a year; the programme of studies for each form covers a year, and the pupil has to go through it. A boy therefore who came at eight years old and began in *huitième*, is 17 years old when he has finished *philosophie*. Sixteen years is the age at which a candidate is allowed to present himself for the degree of bachelor in arts or science. The degree of bachelor of arts is the natural termination of the literary studies of the *lycée*, and the examination for this degree now turns, by express regulation,† upon the matters taught in the classes of *rhetoric* and *philosophy* in the *lycées*. A youth who has gone through these classes with success has no difficulty in obtaining the degree, and

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* See the programme in full at the end of this report.

† *Décret impérial du 27 Novembre 1864, relatif au Baccalauréat ès Lettres.*

one sees on the benches of the *lycées* pupils who, having completed the age of 16, have gone in for their degree, and already got it. Examinations are held twice a year in each of the 16 seats of faculties of letters in France, and in 13 other towns whither the faculties of their respective academies send examiners. The examining jury is composed of three members of the faculty of letters and one of that of sciences. The examinations are public, partly on paper and partly oral, and they last two days. Candidates who fail in the paper examination are not admitted to the oral one. The paper-work consists of Latin and French composition, and of translation from Latin into French; the *vivâ voce* work, of construing a passage from a Greek or Latin author and explaining a passage from a French one, and of answering questions in philosophy, history and geography, and science. The paper-work counts for three marks, the construing and explaining for two, philosophy for one, history and geography for one, science for two. Failure in any one of these five sections causes the candidate's rejection. If he loses three out of the nine marks distributed between the sections he is equally rejected. The part given to mathematics and science (for convenience sake I frequently follow, in this report, our bad and incorrect use of the word science) in an examination for the degree of bachelor of letters, is what will most strike us in going through this programme. A candidate who holds already the degree of bachelor of science is of course exempted from the scientific part of the examination. A candidate who has got, in the class of rhetoric or philosophy, one of the chief prizes for classics in the grand annual competition of the *lycées*, is exempted from the literary part of the examination, but the scientific part he must still go through. The dues for the degree of bachelor amount to 100 fr. (4*l.*)

But many of the best pupils of the *lycées* have in view not the arts degree, but a degree in science and admission to the *écoles spéciales*, as they are called—schools like the Polytechnic, St. Cyr, the *École Navale*, the *École Forestière*, the *École Centrale des Arts et Manufactures*. Admission to these schools is a favourite object of ambition in France; it at once places a young man in a career; but it is guarded by a strict and competitive examination in mathematics and science. It is said that a clever boy who has gone through the *lycée* to the end of *philosophie*, and who has followed with diligence the scientific as well as the literary instruction of the different classes through which he has passed, is, at the same time that he has secured a thorough literary education, strong enough in science to obtain, with a little previous aid from private tuition, the degree of bachelor of science, and to present himself with this indispensable credential at one of the special schools. To encourage boys destined for these schools to complete their course of literary training first, the additional lesson in science of which I spoke when I was describing the rhetoric class has been added to the programme of that class. The boy is thus enabled to keep his mathematics fresh at the same time that he goes on with

his classics. However, it is admitted that in general a much stricter scientific training than this is necessary for a boy who wants to get into the special schools. Two scientific classes are therefore placed as appendages to the *lycée* system—the class of elementary mathematics and the class of special mathematics. The class of elementary mathematics leaves Greek altogether on one side, and of its ten weekly classes gives only one to Latin and French; one is given to history; of the remaining eight, three are given to physical science, five to mathematics. Modern languages, geography, and philosophy are provided for by additional lessons of one hour in the week each. In special mathematics, science has the same share of classes, eight out of ten, but physical science gets only two of them, mathematics the other six. Latin and history disappear, French literature has one of the two classes left, a modern language the other. An additional lesson of an hour in the week is assigned to work in the laboratory.

After a year in elementary mathematics the pupil is ready for the examination of the degree of bachelor of science or that of the Military School of St. Cyr. The class of special mathematics conducts to the more difficult examination of the Polytechnic School, or that of the scientific section of the Normal School. It sometimes happens that the same student passes for both the Polytechnic and the scientific section of the Normal School; M. Duruy in a recent report notices with pleasure that several students who had thus won the double nomination elected for the Normal School. Nothing could better show the credit with which this excellent institution has succeeded in investing the somewhat unattractive professsion of schoolmaster.

But the Polytechnic and St. Cyr have fixed 20 as the highest limit of age for their candidates; the competition, at the Polytechnic especially, is very severe (some people say, too severe), and it is not easy to succeed the first time; a candidate wishes to have time for more trials than one. But a youth who goes through his literary course to the end of *philosophie*, and then takes his two years of mathematics, elementary and special, to fit him for the Polytechnic examination, finds himself with no margin of age to spare, and must succeed the first time or give up his object. Add to this that a boy with a strong aptitude for scientific studies often feels very little disposed for a nine years' conversation with Latin and Greek. Add again, that the parents of a promising boy often feel very little disposed for an eleven years' expense for his schooling, when he might be off their hands in eight or nine. To meet cases of this kind the well-known *bifurcation* had been established. On issuing from the division of grammar, and passing the examination which guards the issue from that division, a boy, instead of entering humanities, was allowed to choose whether his training should be henceforth literary or scientific. The *lycée* offered him his choice between a scientific section, supposed to prepare him for business, for the special schools, for degrees in science and medicine; or a literary section, conducting to degrees in letters and law, and, in general,

giving what the world has agreed to call the education of a gentleman. A boy may be admitted at once to the grammar division; three years of classics, therefore, there, and then the *bifurcation*. But even after the *bifurcation* letters kept a strong hold on the follower of science; one-half of the school-time was in the scientific section given to literature, modern languages, and history, while in the literary section only one-fifth of the school-time was given to science. But neither the friends of letters nor those of science were satisfied with the *bifurcation*. It was said that it took the boys too young, before their vocation was sufficiently clear; that it damaged both scientific and literary studies, producing good students in neither. The present minister, M. Duruy, abolished it. The abolition, however, turns out, when one looks closely at it, to be more apparent than real. It is true that a scientific section of the *lycée* no longer exists in name, and that a boy who after he has done with the grammar division remains on at school must enter *troisième*, the lowest class of the division of humanities, and pass his year there. It is desired, no doubt, by the framers of the new regulations that he should have the benefit of *seconde* and *rhétorique*, if not of *philosophie*, as well; but in these cases, where there is a current of interests which conflicts with the regulations, it is not what is desired, but what is enforced, that is important. The pupil is not obliged to proceed, after *troisième*, to *seconde*, or else leave the *lycée;* a lower division of the class of *mathématiques élémentaires*, under the title of *cours préparatoire*, receives the pupil whose parents wish the direction of his studies to be henceforth scientific rather than literary. He has first to pass an examination in what he has been taught in *troisième;* but once admitted to the *cours préparatoire* his literary classes are reduced to five, and his scientific classes are as numerous as those of *troisième*, *seconde*, and *rhétorique* altogether, and throw into one year the scientific instruction which those classes spread over three. From the *cours préparatoire* he issues into the regular class of *mathématiques élémentaires*, at the end of which follows naturally the examination for the degree of bachelor of science, this examination turning on the matters, scientific and literary, taught in the class of *mathématiques élémentaires* in the *lycées*. Afterwards, if, for the Polytechnic or the Normal School, or for any other object, he needs higher mathematical instruction, he goes on into *mathématiques spéciales*.

The changes introduced by M. Duruy have, therefore, made one year of humanities obligatory on the school-boy proceeding to the scientific classes. To this extent they are in favour of classics. M. Duruy urges also, though he does not enforce, a still longer course of humanities before the pupil gives himself to science. On the other hand, in his new programme he has strengthened the scientific instruction by introducing more of it into the higher classical forms than was formerly taught there. He has also, in general, simplified, compressed, and reduced the old programme of instruction in the *lycées*. Still more has he done this with that

of the bachelor's degree, both in arts and science. This programme, which was before a very wide one, he has now made identical, as I have said, with that of the *lycée*'s two highest classes in humanities, and with that of its class of elementary mathematics. This simplification, the degree in question being for youths of seventeen or eighteen, seems clearly judicious.

The *lycées* of Paris.

With the provision I have described for the supply of professors, they are a body, all through France, of one stamp and training; the pick of them no doubt comes, in the long run, to the Paris *lycées*, but the ablest of young professors may expect to find himself at some moment, in the beginning of his career, at a school in the provinces. The field for him in Paris, however, is large. Paris has seven great classical schools *de plein exercice*, as it is called; that is, in which the full course of instruction which I have detailed above is given; all *lycées* are *de plein exercice;* of the 247 communal colleges only 152 are so; the rest have only the elementary division and the division of grammar; they do not add to grammar the division of humanities. The seven great classical schools of Paris are the *lycées* Louis le Grand, Napoléon, Saint Louis, Charlemagne, Bonaparte, Bourbon, and the Colleges Stanislas and Rollin. Of these the *lycées* Louis le Grand, Napoléon, and Saint Louis, and the two colleges, take boarders; Charlemagne and Bonaparte take day scholars only. Most of them retain the site, at least, of an old pre-revolutionary school; Saint Louis is the *Collége d'Harcourt*, founded in that great school-movement of the 14th century which I have already mentioned, by two brothers, members of Philip the Fair's Council, Raoul d'Harcourt, canon of Paris, and Robert d'Harcourt, bishop of Coutances. Napoléon was the old *Collége Henri IV.*, and as, from the neighbourhood of the Pantheon, one sees its long pile, flanked by the Church of St. Étienne du Mont, where Pascal lies buried, one must own that a venerable look of old France it still retains. Bonaparte was the *Collége Bourbon*. Louis le Grand was the famous Jesuit school of Clermont, which Louis the Fourteenth one day visited, and the performance of the scholars being admired by one of his suite, "What would you expect?" said the king, "*c'est mon collége.*" That night the Jesuits erased the name of *Clermont*, fixed in large letters on the front of their building, and the next morning saw *Louis le Grand* in its stead. Louis le Grand is the only one of these Paris *lycées* which managed to live on through the Revolution, notwithstanding the decree suppressing the ancient colleges. The Jesuits had long been expelled, but it had an adroit director at its head; and though straitened by the trials of the time, it was never actually closed.

These seven establishments have a total of 5,968 scholars. Louis le Grand, the largest, has 1,330; Bonaparte has 1,220; Charlemagne 930; Saint Louis 800; Napoléon 688; Stanislas 620; Rollin 380. The *lycée* of Vanves, a mile or two out of Paris, formed to relieve Louis le Grand of its little boys and to give them country air, has 700 scholars; but without counting Vanves, the seven great schools of Paris contain very nearly

6,000 scholars. The nine English public schools which were the object of a Royal Commission's inquiry, have 3,027 scholars. Only six of the nine have really, in public estimation, the rank of great public schools, the rank which the seven great Paris schools hold; still, let them all be counted in, and yet the public classical schools of Paris alone have nearly twice as many scholars as the public classical schools of all England, nay, of all Scotland and Ireland besides, for these two countries have no public classical schools of the rank of the great English schools or of the Paris *lycées*, and Scotch or Irish parents who desire, and can afford, schools of this rank for their children, must send them to the English public schools.

I visited all the *lycées* of Paris, and I believe there is no part of a *lycée*'s organism, from the elementary division up to *mathématiques spéciales*, which I have not seen at work, and no part of the instruction which I have not heard given. The internal management and the working aspect of all these institutions are similar, though the exterior of the buildings is often strikingly different. The modern, handsome, and wealthy appearance of the *lycée Bonaparte* suits its position in the newer and more luxurious quarter of Paris—the quarter most frequented by visitors—with the Rue de la Paix, the Grand Hôtel, the Opera, and the Madeleine for neighbours. On the other side of the Seine, in the old quarter of the schools and the religious, in the neighbourhood of the Sorbonne and Sainte Geneviève, the somewhat dilapidated front of Louis le Grand or Napoléon suits the antiquity and associations of the region. Many of the public school buildings in France, the old school sites and fabrics having been, as I have already said, restored after the Revolution, as far as possible, to their former destination, are in fact very old, and the rebuilding and repairing of the *lycées* and those sanitary works in connexion with them which earlier ages neglected, but which are now thought, and rightly, of such great importance, are a cause of constant and heavy expense to the government. In this way the whole front of Saint Louis, which stands on the new continuation, upon the left bank of the Seine, of the Boulevard Sebastopol, has just been rebuilt, and a very handsome building this *lycée* now is. You ring at the decorated entrance in the boulevard, and the porter admits you to the open and spacious vestibule, looking on the school's first great court, surrounded by high white walls with uniform tiers of windows, and communicating directly with the *parloir*, where at all the French public schools a boarder's parents, or those authorized by them, can come and see him between twelve and one, or between half-past four and five. Ascending a staircase, one reaches the *cabinet* of the censor and that of the provisor. The room of the provisor communicates with the apartment where he is lodged (for the provisor lives at the *lycée*), and the provisor's lodging at Saint Louis is most enviable. Its occupant when I was there was M. Legrand, but he has since left it to become provisor at Bonaparte, a much easier post, because at Bonaparte

there are no boarders. Everyone who has had opportunities of observing must have been struck to see how much work Frenchmen seem able to do, and to do with spirit and energy; the provisor of a great *lycée* certainly needs to have ability of this sort, with the business and responsibility of a boarding house of some 500 boys pressing upon him. M. Legrand had it to perfection; constantly appealed to, with a rain of letters, messages, meetings, applicants, visitors, perpetually beating upon him, he seemed to suffice to all claims, and to suffice not only industriously but smoothly; but he began his work, he told me, at four in the morning. On several occasions he took me through the different departments of the *lycée;* the internal economy of such an institution could not be better seen than at Saint Louis and with such a cicerone as M. Legrand. The series of large courts for a school of 800 boys, courts generally quiet, but at the breaking up of a lesson or in the short time allotted to recreation noisy enough; spacious and airy, sometimes shaded with trees, but looking, to an ex-schoolboy from one of the great English schools, hopelessly prison-like; on the ground floor round the courts the school-rooms, *salles de classe,* with their professor and their 30 or 40 boys, seated at desks rising one behind the other; or the work-rooms, *salles d'étude,* rooms of much the same aspect and dimensions as the *salles de classe,* but with a *maître répétiteur* presiding in them instead of a professor, and with the boys learning their lessons instead of saying them; above, the refectories with their show of table napkins and silver cups, and the large dormitories scrupulously neat and clean, at one end the curtained bed of the usher in charge, in the door at the other a window by which to overlook the room from without, and, near it, ingenious mechanical devices by which the visits of the functionary whose business it is to see, so often in the night, that all is well in each bedroom, are recorded, and the controller is himself controlled; then the dispensary and infirmaries, the service done by sisters of charity, with rooms for all stages of illness and the eternal usher overlooking those invalids who are up and together; the linen stores and clothes-rooms, everything beautifully kept, each boy's things ticketed and numbered with the greatest exactness; the bath-rooms, offices, kitchens, the supplies of bread and wine, the soup, meat, vegetables, pastry, all in preparation on a grand scale and all of them which I tasted excellent—this is what may be seen in every great *lycée* in France; but at Saint Louis, from the newness and freshness of the buildings, and the perfection of finish and order which is reached, it may be seen to special advantage. Finish and order are, however, in the great majority of cases rules of French administration; and as I have already remarked, the march of a great public service, such as is the service of one of these establishments, has inevitably something imposing in it, if regularly and well conducted, which the arrangements of private establishments, in which the individual has, very likely, his tastes more consulted, and a life more to his mind, cannot well equal But when we come to consulting the individual's taste

and giving him a life to his mind, we generally come at the same time to expense; a cheap private establishment, without the regularity and economy of a great machine, and without the costly luxury of independent comfort, is a slipshod thing, full of meanness and misery. It is to be remembered that in one of the Paris *lycées* a boy is to have board, instruction, books, writing materials, clothes, washing, medical attendance, and medicine, for 50*l.* a year. The question is, how these may be given best for that money.

The medical service is excellent; the general rate of sickness in the *lycées* is certainly surprisingly low, and probably to the excellence of the medical service—for ability, completeness, and attention, far exceeding, like that of a great hospital, anything the inmates of the establishment could command at home—this is in great measure owing. The meals are four in number; breakfast, dinner at 12, the *goûter*, as it is called, at half-past four, and supper in the evening. The breakfast is a slight, and the *goûter* a very slight affair; this latter is in fact a roll of bread and nothing more; the dinner and supper are the substantial meals. The dinner is in general soup, then two dishes and a vegetable, then dessert; there is an allowance of wine. It will be seen how different is the system of meals from ours, or at least from what ours was; but it is in great measure climate and differences of physical organization which determine the varieties in these things. I have heard some complaints of the way the boys are fed in the *lycées;* not as to the quality of the food, but the quantity, I have heard several people complain, is apt to be insufficient. I give these complaints, on a matter which, with boys, very easily gives rise to them, and where it is not very easy to test their exact justice, for what they are worth. Health.

The boys in a *lycée* have, it must be said, to our notions a long and exhausting day; they rise earlier than our boys, later than boys in Italy (this again is an affair mainly of climate); the boarders in a French *lycée* rise from five to six, and their allowance of school hours is more than ours, their allowance of air and exercise less. The hours of class are but four a day, from eight to ten in the morning, and from two to four in the afternoon; but this is only a small part of the work-day of the French schoolboy, his hours passed at *conférences,* at examinations, and above all at preparing his lessons in the *salle d'étude,* under the eye of the *maître répétiteur,* have to be added to it. It seems to me that the French schoolboy is at lessons, on an average, 10 or 11 hours a day, and that his time for meals and recreation is not, on an average, more than two hours. Thursday is a half-holiday, and the only one. Certainly, the boys, at their quarter-hours or half-hours of recreation, seem to enjoy themselves with great spirit, and their gymnastics are probably a better physical training for the short time they have to give to exercise than our boys' amusements would be; but they did not, in general, to my thinking, look so fresh, happy and healthy as our public school boys. The master of a well-known *pension,* who had English boys as well as French, assured me that the Overwork.

French boys were not to be judged by their complexions, that they had more last and a tougher fibre than our boys, and that when he took them out together on long excursions his English boys, vigorous at first, knocked up sooner than his French boys. This is the old reproach of the Latin races against the northern barbarian, that he is lusty, and melts and gives way in the sun; there may be some truth in it, and the spirit and gaiety of an English boy do not go with him into his exercise, he flags in it, if he does not feel he is at play and free in it; thus it has been observed that gymnastics do not flourish in our schools, they are too much of a drill or a lesson; and for the same reason the volunteer company has not so many or such ardent recruits as cricket or boating. And no doubt the physical energy of the young English *pensionnaire* would show to more advantage if he was matched in cricket or boating with his French comrades, than in gymnastics or a walking excursion, where he is a little damped by the sense of constraint and rule. Still it is hard to believe, and I do not believe, that the confinement, the scanty recreation, and the long school-hours of a French schoolboy are without some unfavourable effect on his health and development; the long school hours, however, are an almost inevitable result of placing large boarding schools in the heart of large cities, where space for exercise and freedom of range must be limited, and the boys therefore must be kept more at work to save them from the mischief of being penned up together in idleness with few or no resources of amusement; the placing large boarding schools in large cities is itself, again, an almost inevitable result of having large day schools attached to the boarding schools; for the supply to large day schools can only be found, of course, in large cities, and indeed the need for them only exists there. It must be added, besides, that a body of professors such as the *lycées* of Paris are proud, and justly proud, of possessing, is hardly to be obtained out of a large city. Many of these professors have pursuits, independent of their work at the *lycées*, which tie them to Paris; and the *lycées*, if they were planted in the country, amidst better conditions of physical development for their boys, might have some loss in professors to set against the gain in other respects.

Competitive examinations for little boys.

The French *lycées*, however, are guiltless of one preposterous violation of the laws of life and health committed by our own great schools, which have of late years thrown open to competitive examination all the places on their foundations. The French have plenty of examinations; but they put them almost entirely at the right age for examinations, between the years of 15 and 25, when the candidate is neither too old nor too young to be examined with advantage. To put upon little boys of 9 or 10 the pressure of a competitive examination for an object of the greatest value to their parents, is to offer a premium for the violation of nature's elementary laws, and to sacrifice, as in the poor geese fatted for Strasburg pies, the due development of all the organs of life to the premature hypertrophy of one. It is well known that the cramming of the little human victims for their ordeal of com-

petition tends more and more to become an industry with a certain class of small schoolmasters, who know the secrets of the process, and who are led by self-interest to select in the first instance their own children for it. The foundations are no gainers, and nervous exhaustion at 15 is the price which many a clever boy pays for over-stimulation at 10, and the nervous exhaustion of a number of our clever boys tends to a broad reign of intellectual deadness in the mass of youths from 15 to 20, whom the clever boys, had they been rightly developed and not unnaturally forced, ought to have leavened. You can hardly put too great a pressure on a healthy youth to make him work between 15 and 25; healthy or unhealthy, you can hardly put too light a pressure of this kind before 12.

The bursarships in the *lycées* are, therefore, not given away by competitive examination among children from eight to twelve; they are given on the ground of poverty, either to the children of persons having some public claim, or to the most promising subjects from the primary schools. This seems to me quite right, and I wish the Commission to remark how here, as elsewhere, we suffer from our dread of effective administration and from the feudal and incoherent organization of our society. In the hands of individuals and small local bodies patronage like that of our foundation schools becomes outrageously jobbed; at last the public attention gets directed to this, and the patronage has to be otherwise dealt with; but there is no body of trained and competent persons with authority to decide deliberately how it may be best dealt with; so it ends by the local people through whose laches the difficulty has arisen throwing a sop to Cerberus, and gratifying an ignorant public's love of claptrap by throwing everything open to competitive examination. On the continent there is an Education Minister and a Council of Public Instruction to weigh matters of this kind; so far from jobbing being promoted by this, the examination test is much more strictly applied in France than with us, but there is a competent authority to decide when it is rational to apply it and when absurd. Neither are there any complaints of the way the *lycée* bursarships, it being judged best not to give these by competitive examination, are distributed; because here again, all that is done is done with the safeguards of joint action between several competent agencies, of publicity, and of responsibility. It is a mistake to suppose that a government bureau, in an administrative organization like that of France, has no checks; it has far more checks than a government bureau here, which has been extemporised to meet some urgent want, and is not part of a well-devised whole. The secretary of our Education Department is almost invited to settle of his own authority education questions which M. Duruy, though a minister, would not settle without referring them to a Council composed as we have seen; even supposing our secretary refers them to his chiefs and they refer them to the Committee of Council—how is this Committee of Council composed? Of three or four Cabinet Ministers, with no special acquaintance with educational matters.

The *lycée* of Vanves.

The want of more air and exercise for their schoolboys is a matter which is occupying the attention of the authorities of public secondary instruction in France; they are beginning with the greatest sufferers by the old system, the little boys, and the *lycée du Prince Impérial*, at Vanves, is a fruit of their awakened solicitude for these children. Vanves is charming. It lies a mile or two out of Paris on the Vaugirard road. It was a summer villa of the Prince of Condé; when the then holder of this title emigrated at the Revolution, Vanves was sold as emigrant's property, and was bought very cheap by the *lyceé* Louis le Grand, which managed, as I have said, to subsist through the storms of the revolution. It is now, like every other *lycée*, the property of the State, and after having for some time served as a juvenile department for Louis le Grand only, it is now an independent establishment for little boys, beginning with primary instruction and carrying them no farther than *cinquième*, when they are passed on, not necessarily to Louis le Grand only, though the old connexion of Vanves with this *lycée* is felt as a strong tie, but to whatever school the pupil chooses. Seven hundred little boarders (for Vanves takes no day scholars) of from 5 to 10 or 11 may be seen here, and a pretty sight they are. The park and garden are quite delightful, and the ground beautifully thrown about; the high hill on which stand the school buildings commands a magnificent view of Paris on the one side, and of the country towards La Celle St. Cloud and St. Germain on the other. The buildings have been of late greatly enlarged, and every improvement in school construction and arrangements, according to the French notions, introduced; and whoever wishes to see French school construction and arrangements at their very best should go and see Vanves. The school is popular, and no wonder; at the lodge at the foot of the hill one sees carriages waiting, and in the glades of the park the mammas whom they have brought may be descried walking with their little boys. Being so young the pupils pay the lower rate (40*l.* to 45*l.* a year) fixed by authority for the younger divisions in the Paris *lycées;* but it is on little boys, they say, not yet come to the terrible appetite of 15, that the great profits are made; and while many *lyceés* can hardly make both ends meet, Vanves is in the highest prosperity; it is self-supporting, and after paying all its expenses has a profit of 4,000*l.* a year. Its progenitor, Louis le Grand, clears a profit of more than 3,000*l.* Profits of this kind go to the State, the proprietor of the *lycées*, and are available for the general expenses of secondary instruction. In this way a prosperous *lycée* helps to pull a struggling *lycée* through; but a *lyceé* which brings in plenty of money will always be liberally treated for its own improvements and extensions.

Internes and *externes.*

Vanves has no day scholars; its boarders are all housed on the premises, and all pay about 40*l.* a year. In the ordinary *lycées* it is not so. These, with scarcely an exception,* take day scholars,

* At the *Collége Rollin* they are all boarders.

and do not themselve lodge all their pupils who are boarders. They all charge a rate fixed by authority,* ranging, for their boarders, from 40*l.* to 60*l.* a year; for their day scho ars, from 6*l.* to 10*l.* For the boarder this includes everything; his *tutor*, as we should say—that is, the professor who gives him the benefit, out of class hours, of certain *conférences* and examinations, and the *répétiteur*, who helps him with his lesson—as well as his class instruction and his board; for the day scholar, it only includes his class instruction, and he pays from 3*l.* to 5*l.* a year extra, according to his place in the school, for *tutor*. This makes a day scholar's expense come to from 9*l.* to 15*l.* a year. Some boys are half-boarders, passing the 12 hours from 8 a.m. to 8 p.m. at the *lycée*, getting their dinner and their *goûter* there, but not breakfasting, supping, or sleeping there; these have the full instruction, and they pay from 22*l.* to 34*l.* a year for it. The *externe surveillé* is a day scholar who learns his lessons in the *salle d'étude* under the usher's eye, and is thus off his parents' hands the whole day except an hour in the middle of it, but has no meals at the school; he pays, as an ordinary day scholar with the full instruction, from 9*l.* to 15*l.* a year, and 80 francs (about 3 guineas) a year besides for superintendence.

But all the day scholars of a *lycée* which takes boarders are not boarders of the *lycée* itself; and many of the day scholars of a *lycée* which takes no boarders are boarders, though not in the *lycée*. At Louis le Grand, for instance, the greatest of the *lycées*, there are 800 boarders (*internes*) and 500 day scholars (*externes*); but all these *externes* do not live at home. Charlemagne and Bonaparte have no *internat*, they are day schools; but the population of Bonaparte is thus divided: day-scholars who live at home (of these 151 are *externes surveillés*), 707; day-scholars who are at a boarding-house, 493; total, 1,200. And that of Charlemagne thus: day scholars who live at home, 200 (70 of them *externes surveillés*); day scholars who are at a boarding-house, 790; total, 990. A boarding-house of this kind is called in France *pension, institution;* its director is called *chef de pension, chef d'institution.*

Pensions, or *Institutions libres.*

These establishments are private, or, as the French prefer to call them, free (*école libre, institution libre*). They are not free in the sense that any man may keep one who likes; to keep one a man must be 25 years old, must have had five years practice in a school, and must hold the degree of bachelor, or a certificate which is given after an examination of the same nature as the examination he would have to pass for the degree of bachelor. Thus he cannot, as in England, be perfectly ignorant and inexperienced in his business; neither can he, as in England, be a

* *Décret du 5 Août* 1862. In the elementary division boarders pay 40*l.*, in the grammar division 44*l.*, in the superior division 48*l.*, in special mathematics (where they have, perhaps, the best scientific and mathematical teaching to be got anywhere) 60*l.* Day scholars pay, in the elementary division, 6*l.*, in grammar 8*l*, in humanities and special mathematics 10*l.*

ticket-of-leave-man, for the French law declares every man who has undergone a criminal condemnation incapable of keeping a school. Neither can he have his school-room in ruins or under conditions dangerous to his pupils' health or morality; for if it is a new school he is establishing, he has to signify his intention beforehand to the academic authority of his department, and if this authority makes objection, the Council of Public Instruction in Paris, in the last resort, decides. If within a month the academic authority makes no objection, he is then free to open his school; but it is at all times liable to inspection by the academic authority or the inspectors-general of secondary instruction, to ascertain that nothing contrary to health, morality, or the law, is suffered to go on there. The inspector of a school of this kind does not meddle with its instruction.

Much the most famous of these institutions is Sainte Barbe, near the Pantheon; it is in the neighbourhood of Louis le Grand, and boards a great number of boys who follow the classes of that *lycée*. Sainte Barbe answers more than anything else I saw in France to a public school with us; I do not mean at all in the mode of management and teaching, which is that of all French schools; but it is not a State establishment, and yet has antiquity, important buildings, a great connexion, a *genius loci*, and general consideration. Its head, M. Labrouste, is a member of the Imperial Council of Public Instruction. Many families which frequent the great classical *lycée*, Louis le Grand, have used Sainte Barbe as their boarding-house for generations; the *Collége Rollin* was once held here; and the prosperity of the establishment is now so great that it has recently founded a Vanves of its own for its little boys at Fontenay aux Roses, near Paris; and Fontenay, like Vanves, is well worth seeing. But just because it has this exceptional character, Sainte Barbe, of course, is not a good sample of the French *pensions;* neither is it a good example of the French private schools, because its chief function, though it has classes of its own, is to serve as a great hereditary boarding-house to the frequenters of Louis le Grand. So I will go elsewhere for specimens of the *pension*, which now occupies us.

These institutions abound in Paris, and the files of uniform-wearing schoolboys whom one meets in the streets are generally *pensionnaires* going under the care of the master of the *pension* or one of his ushers to or from the *lycée* whose classes they follow. The Commissioners will ask, as I did, why, if a boy is not to live at home, but to be a boarder somewhere, he does not go and board at the *lycée* whose classes he follows. The answer in the case of Sainte Barbe to the question why the *institution* has the preference over the *lycée* is, as I have said, old hereditary connexion. But generally the answer is this: parents seek a somewhat less vast assemblage of boys, a somewhat more domestic management, and a somewhat more attentive supervision of studies out of class hours than they find, or think they find, at the *lycée*. At the same time they like the name of the *lycée*, its guarantees, and its professors. So they send their boy to a *pension* where he is with

fifty, a hundred, two hundred boys, not with four or five hundred; where the master's wife imports the feminine element into the direction of household affairs, and where their boy gets more looked after in learning his lessons, and better tutored; and then he is to add to this the benefit of the *lycée* professors and the *status* of a public schoolboy.

Two of these *pensions* I visited, besides Sainte Barbe; M. Cousin's in the Rue du Rocher, and the *Institution Massin* in the Marais. A German would hardly think of visiting M. Cousin's *pension*, but it has an interest for an Englishman in being one of the very few boarding-houses which approach in expensiveness our Eton and Harrow. It is in connexion with the *lycée Bonaparte*, and is fed, like that *lycée*, from the wealthy and luxurious quarter of Paris. A certain number of great personages send their sons to the classes of Bonaparte, and have a tutor for him at home. This, however, gives the paternal home the benefit of the boy's residence, which, unless the paternal house is very large, is not always convenient; besides, a tutor at all equal to the tutors of a good *pension* is a costly luxury if one has him all to oneself. So many of the great people of the rich quarter send their boys to M. Cousin. His expensiveness has been exaggerated; about 120*l.* a year is the cost for an elder boy there, and the cost for a younger boy is less. M. Cousin's house is a good one, and he has a garden, which, for Paris, is delightful; the meals are said to be very good; the older boys have excellent rooms to themselves; the younger ones are not more than two or three in a room; the time given to recreation is something more than in the *internats* of the *lycées*, and the whole establishment has a more domestic character than they have, and not their rigid, formal, and military air. As to lessons and sports, however, the difference between M. Cousin's and a *lycée* is, to an Englishman's notions, slight; the system is in the main much the same, and necessarily so; but there is no doubt that the preparation of the boys for their classes, and the individual help given them out of *lycée* hours, is much more considerable at M. Cousin's; indeed, one may say roundly that he employs professors where the *internat* only employs ushers. The *conférences* and *repétitions* of the *lycée* are, indeed, by professors, and are designed to meet the want of tutoring; but the amount of these which falls to the *interne's* share is not to be compared with the amount he gets of *salle d'étude* work under an usher, who is as different from a professor as chalk from cheese; and it is the object of establishments like M. Cousin's to make the *maître répétiteur*, as tutor, disappear, and come in only as watchman, and, as tutor, to put the professor in his place. This M. Cousin does, and it is the best ground for his high charges.

I must add that M. Cousin himself is an ex-functionary of public instruction, and that the success he enjoys seemed to me thoroughly well earned.

As M. Cousin feeds Bonaparte, so the *Institution Massin* feeds Charlemagne. As Bonaparte is a somewhat fashionable *lycée*, so Charlemagne is a somewhat democratic *lycée;* selected, in general

by poor but clever school-boys from the provinces whose parents wish to give them the advantage of one of the great *lycées* of Paris. It is on the right bank of the Seine, but beyond the wealthy quarter. Charlemagne has no *internat*, yet four-fifths of its pupils are boarders. They board in *pensions* not like that of M. Cousin; and the *Institution Massin* in the Marais close by—a quarter which has long ceased to be aristocratic and fashionable—is a good sample of them. It was founded in 1810, at the revival of secondary instruction in France, by M. Massin, from whom it takes its name; its present head is M. Lesage, who has the grade of licentiate, the title of *agrégé*, and was for 12 years a professor at Charlemagne. He, too, then, is no adventurer, and may be supposed to know his business. An Englishman can at once see the difference between the domestic arrangements at M. Cousin's and those of a *lycée*, though the general course of study and play will seem to him to be pretty much alike at the two places. At the *Institution Massin* the march of the domestic arrangements and the aspect of the premises seem to me not to differ much from those of the *lycée*. The expense at M. Lesage's differs very little from that at a *lycée;* in France it is a very small body of parents which will exceed this rate, and the *pensions*, therefore, the immense majority of them, keep their charges very near the rate of the public schools. At M. Lesage's the charges for boys in special mathematics are slightly lower than those in the *internat* of a *lycée;* for other boys they are from five to ten pounds a year higher. That is to say, a boy in humanities at Charlemagne who boards with M. Lesage, pays M. Lesage for his board and tuition 1,200 fr. a year, and pays the class-fees of Charlemagne, 250 fr., besides; in all, 58*l.* a year. As an *interne* in humanities at Saint Louis, his board, tuition, and class-fees would all be covered by 1,200 fr. (48*l.*). The same in the lower divisions; M. Lesage's boarders pay the same as the *internes* of a *lycée*, with the class-fees of the *lycée* in addition. The pupils in special mathematics spring at once, if *internes* of a Paris *lycée*, from 1,200 fr. to 1,500 fr., a great leap; the class-fees, however, are the same in humanities as in special mathematics. The increase of 300 fr., then, is for board and private tuition alone; and this increase M. Lesage does not think it needful to make, but charges a boy in special mathematics, like a boy in humanities, 1,200 fr. a year for his board, and 250 fr. a year for his *lycée* class-fees.

A certain number of M. Lesage's pupils are boys who are too backward for the *lycées*, or who, from their age, have not time to follow the *lycée* course; these have their whole instruction at the *pension*, an instruction in the main identical with that of the *lycée*. These pay the same as the other boarders, minus the *lycée* class-fees. Their education, therefore, costs them from 5*l.* to 10*l.* a year less; but it says much in favour of the *lycée* classes that the boys fit for them almost invariably pay the fees and follow them.

The aspect of things at M. Lesage's, the internal arrangements, the large dormitories, the *salles d'étude*, the courts, the chapel, are

all to an English eye hardly distinguishable from those of a *lycée*. The meals are the same; a sister is to be seen in the infirmary; there are the two *aumoniers* to give religious instruction to the Catholics, and the Protestant ministers to pick out their sheep and conduct them to the *temple*. There is the same preparation for the degree of bachelor as at the *lycées*, even the same special preparation for the great Government schools as at Saint Louis.* Only there is, or is believed to be, a more effective and sustained tutoring; there is Mme. Lesage to give an eye to the younger boys or to invalids; the movement of the whole establishment does not seem so entirely mechanical, and the numbers, though large, are not, as in the *internats* of the great *lycées* of Paris, so vast that a boy feels lost in them. Charlemagne having no *internat*, it is obvious that a boy who does not live in Paris, and wants to go to Charlemagne, must board elsewhere than at Charlemagne. But the notion that a *pension* is more homelike and less barrack-like than the *internat* of a *lycée*, that there is more individual care, and that the tutoring is better done, tells in some degree, no doubt, in favour of an establishment like M. Lesage's, as well as in favour of one like M. Cousin's, though in the case of M. Lesage's, as I have said, the difference from a *lycée* is not very perceptible.

There are *pensions* formed on some special principle of grouping, such as nationality or religion; for instance, for Polish boys frequenting the *lycées*, for Protestant boys frequenting the *lycées;* of course, with this further tie between the inmates, the principle of association becomes still less mechanical. The march of the institution, however, its scale of expense, and the reasons for preferring it, will be found, I think, in nearly all cases pretty much what I have described them.

The communal colleges.

But the Commissioners will desire to hear of humbler public schools than the great *lycées* of Paris. Let us then take the *Collége Communal* at Boulogne, close at our own door, which almost any of us may have an opportunity of seeing. Again a large, imposing building; it stands in one of the principal streets of the town, and it gives its name, *Rue du Collége*, to one of the side streets. Again the University of France, with its guarantees and inspection; *Collége Communal de Boulogne-sur-Mer; Instruction Publique; Académie de Douai*, is the full style of the institution. "The public establishments for secondary instruction," says the organic law,† "are the lyceums and the communal colleges. Boarding-"houses may form part of them. The lyceums are founded and "maintained by the State, with the co-operation ‡ of the depart-"ments and towns. The communal colleges are founded and "maintained by the communes. In order to establish a communal

* At Saint Louis the special and elementary mathematics of the ordinary *lycées* are organized with peculiar and minute reference to the examinations of the several Government schools, and take the title of "École Préparatoire aux Écoles Spéciales du Gouvernement." There is a two-year course of special mathematics.

† *Loi du* 15 *Mars*, 1850, *sur l'Enseignement*; art. 71, 72, 74, 75.

‡ This co-operation consists in the foundation of scholarships (*bourses*).

" college, every town must fulfil the following conditions: it must " furnish premises suitable for the purpose, and undertake to keep " them up; in these premises it must place and keep up the neces- " sary fittings for the classes, and for the boarding-house too, if " the school is to take boarders; it must guarantee, for five years " at least, the fixed salary of the principal and the professors, " which shall be held to be an obligatory charge upon the com- " mune in case the resources of the college itself, the school-fees " paid by day scholars and the proceeds of the boarding-house, are " insufficient. The object and extent of the instruction in each " communal college shall be determined, regard being had to the " wants of the locality, by the Minister of Public Instruction, in " Council,* on hearing the proposition of the Municipal Council " and the opinion of the Academic Council thereon." The Communal College of Boulogne exists in conformity with these provisions of the law. Its inspectors are the rector of the Academy of Douai, the academy-inspector for the department of the Pas de Calais, and any one of the eight inspectors-general for secondary instruction whose tour of inspection brings him that way. It is a communal college *de plein exercice;* that is, it has not only the elementary division and the division of grammar, but that of humanities also. And it is the college of the municipality, kept in its own hands and entrusted *en régie* only (as it is called) to the principal as their functionary. Sometimes the communal college is made entirely over to the principal, with a subvention from the municipality, and the condition annexed that he shall take a certain number of scholars on certain terms. Beyond this, he may make what he can out of the school, and he conducts it at his own risk. The principal of the Boulogne College, M. Blaringhem, told me that he had held a municipal college in this manner, but that he preferred to hold it as at present, *en régie*, on a fixed salary. I asked him if it was not more lucrative to be able to charge for one's boarders what one liked, instead of having the tariff settled by authority; he said, no, because the public school tariff fixed, with the most rare exceptions, the tariff for all the schools in the country. And this is what I have again and again been told.

So the Boulogne College has its council of administration, like a *lycée*, to overlook its business affairs, and to go through its accounts in concert with the principal, as the council of a *lycée* goes through them in concert with the provisor. Only as the college is a municipal institution, while the *lycée* is a State institution, and it is the French rule that the administration of a public establishment shall mainly belong to that public authority—whether the State, the department, or the commune—with which it is in immediate connexion, the council of administration of the Boulogne college is a municipal body. It consists of the mayor, the ex-mayor, a judge of the civil tribunal at Boulogne, the president of the Boulogne tribunal of commerce, and two lawyers, one of them

* This is the Imperial Council of Public Instruction.

a member of the Boulogne municipal council, the other the mayor's adjoint. The scale of school-charges is fixed by this body in concert with the principal, and with the sanction of the rector of the Academy of Douai, to which Boulogne belongs. The charges are much lower for French boys than at Paris. A boarder under 12 pays but 23*l.* a year; over 12 but under 15 he pays 25*l.*; above 15, 28*l.* The day-scholars fee is the old Paris school fee before 1853, 100 fr. (4*l.*) For English boys (of whom there are several) the rate is higher, because they have to be taught the French language; but for them the rate is not in itself high; for boarders under 12 years of age, 39*l.* a year, from 12 to 15, 42*l.*, above 15, 48*l.* English day scholars pay 4*l.*, 5*l.*, or 8*l.*

The school arrangements, hours, and lessons are just the same as in a *lycée;* there is primary instruction for the little boys, then an elementary and a grammar division with their regular classes; then humanities conducting to the degree of bachelor of letters, and a scientific training conducting to a degree in science, and to the great Government schools. The college staff consists, besides the chaplain, the teachers of modern languages and drawing, and a primary schoolmaster, of the principal and 12 regents, one for philosophy, one for history, three for science and mathematics, seven for classics; the principal must hold at least the degree of bachelor; eight of the 12 regents (all above the division of grammar) must hold the degree of licentiate, the other four must hold that of bachelor. The degrees of licentiate and bachelor are obtained, as I have said, only by examination. The degree of licentiate means more than an Oxford or Cambridge degree of master of arts, for which there is no examination. But I should like to see in any one of our considerable towns over against Boulogne—Dover, Ramsgate, Canterbury—a public school with a staff of 13 functionaries holding degrees, literary or scientific, from the universities of Oxford, Cambridge, or London. And the four other principal towns of the *Pas de Calais* have each, as well as Boulogne, their public school; Saint Omer* has a *lycée*, Arras, Béthune, and Saint Pol have communal colleges.

Private schools.

It is obvious that when the public schools of a country educate 66,000 of its boys of the upper and middle classes, the work left for private schools to do cannot be nearly so considerable as with us. I have remarked already that the population of the nine schools on which a Royal Commission reported barely exceeds the half of that of the great classical schools of Paris alone. But the *Public Schools Calendar* gives a list, after the nine schools, of all the chief endowed grammar schools of this country, and of the chief schools of modern foundation, such as Cheltenham and Marlborough. Certainly a good many of the endowed schools in the list do not at present rank as high as even a communal college; but giving all of them, and all of the schools of modern

* Arras is the chief town of the Pas de Calais, but the *lycée* is not always in the chief town.

foundation enumerated in the calendar, the rank of public schools, and adding their population to that of the nine schools, I find that our public school boys in England number (in round figures) 16,000, to match the 66,000 public school boys of France. I think the Commissioners will be startled, as I was, by this comparison. If a public school education is an advantage, then this advantage is enjoyed by 50,000 more boys in France than with us.

So private education is by its volume a much less important affair in France than with us. I cannot give the Commissioners any accurate statistics of it. There are said to be 1,395 institutions of secondary instruction in France conducted by laymen or by the secular clergy; the clerical seminaries, therefore, 223 in number, are included in this body of schools. The 1,395 schools have a total of 112,628 scholars. There are, besides, 33 institutions of secondary instruction belonging to religious corporations; these 33 have a total of 5,285 scholars. This gives, in round numbers, 52,000 boys in private secondary schools, clerical and lay, against 66,000 in the secondary schools of the State. The French Government are intending to bring out a great statistical work on secondary instruction, and this will contain interesting information on the number and population of the private schools; but this work is still only in prospect. I find that Paris contains 131 private secondary schools (*établissements libres d'instruction publique*); but in this number are included establishments like M. Cousin's and the *Institution Massin*, acting mainly as feeders to the public schools, and a very large number of the 131 are places of this kind. If we take the departments, where the private secondary schools are almost universally independent of the *lycées*, we shall be struck with their insignificant number compared with what we are used to in England. Let us take the Academy of Paris. The district of this Academy includes nine departments: Seine, Cher, Eure et Loir, Loir et Cher, Loiret, Marne, Oise, Seine et Marne, Seine et Oise. Setting aside the metropolitan department, the number of the private secondary schools is as follows: in Cher, four; in Eure et Loir, four; in Loir et Cher, four; in Loiret, four; in Marne, six; in Oise, five; in Seine et Marne, 11; and in Seine et Oise (a department *quasi* metropolitan, of which Versailles is the capital), 19; 57 in all. These same eight departments contain four *lycées* * and 21 communal colleges.

Two private establishments which I visited I will mention, because they both enjoy a high reputation. One is the School of Sainte Geneviève in the Rue des Postes, the other is the Jesuits' School at Vaugirard. Like the school at Vaugirard, the school in the Rue des Postes is in the hands of the religious. Both are considerably more expensive than the public schools, keep up a brisk competition with them, and make them very jealous. This is particularly the case with the school in the Rue des Postes, which is

* The easy access to the great *lycées* of the metropolitan department explains the fewness of the *lycées* in the other departments of this academy district.

a special preparatory school for the Polytechnic, Saint Cyr, the Naval School, and other Government establishments of the kind; the charge is 1,800 fr. a year (72*l.*), and certain matters are extras which are not extras in the *lycées;* a boy here does not cost less than 80*l.* But the course is not for more than two or three years; a boy comes here at the age when he would be entering *mathématiques élémentaires* at the *lycée;* here, too, he gets a thorough mathematical training, but this school aims at uniting this training with a truly religious education (*unir de fortes études mathématiques à une éducation vraiement religieuse**). I found 300 boys here, with 35 masters, half for superintendence and half for teaching. It is, of course, to its superintendence that an establishment of this kind aims at giving a character entirely different to that of the superintendence in the establishments of the State. For the special scientific training of their pupils these religious are free to use, and do use, along with duly qualified teachers of their own order, the best lay instructors of the capital, the same as the *lycées* themselves employ. Their charges are high, and they can afford to provide thoroughly good teaching. Private tuition is an extra, and their pupils are the sons of wealthy people and can afford this extra. They admit their pupils with careful tests as to character and capacity, and they keep them for the first three months on probation; the seclusion is greater than in the *lycées;* the boys have "leave out" but once a month instead of once a fortnight; visits in the *parloir* are permitted only twice a week instead of every day. No wonder, then, that this abundance of care, concentration, and appliances bears fruit, and that the candidates from the Rue des Postes are remarkably successful in the examinations for the Government schools.

I was particularly struck with the good appearance of the boys here. In the *lycées* I had been struck with their good manners, and the natural politeness they showed, down quite to the little boys, when tried by the unusual incident of the entrance of a stranger and a foreigner into their school room; I am afraid in England there would have been much less rising and bowing, and much more staring and giggling; but here, besides having good manners, the boys certainly looked, I thought, fresher and better than in the *lycées.* They are a great many of them the sons of the old noble families of France, amongst which, as is well known, Catholic sentiment is strong. They have probably had more advantages for their health and growth and good looks than the mass of the *lycée* boys, and the grounds and recreation of the school itself, though not without a general resemblance to those of a *lycée,* had something much more attractive in them. The great religious house, with its large cool galleries looking on the convents and gardens of that old quarter of Paris, and the figures of the religious moving about, had certainly a repose and refreshment

* The words of the prospectus of the school.

for the spirits which in the great barrack-like machine of a *lycée* is wanting.

The same may be said of the Jesuits' School at Vaugirard. This school is even more interesting than that of the Rue des Postes, being a complete school, while that is only a set of scientific classes. At Vaugirard they go through the whole course, as in the *lycées*, from primary instruction to *philosophie* and *mathématiques spéciales*. Here, too, as in the Rue des Postes, they are very successful in the examinations for the great Government Schools; and for the same reasons. The boys are all boarders; the fees are high (about the same rate as in the Rue des Postes); no expense need be spared, and the tutoring as well as the class-lesson is very careful and good. The instruction is given by the religious, and as they work for love and for the good of their order, of course one great cause of expense in lay schools—the payment of teachers—is cut off. I heard the teaching in *philosophie*, *rhétorique*, *quatrième*, and the elementary division. The Jesuits seemed to me quite to merit their reputation as teachers. The superior is in every respect a remarkable man. He was a distinguished pupil of the *École Normale;* then he became a Jesuit, and, of course, quitted the service of the State; but his experience in the *École Normale* is no bad thing for his school. The good appearance of the boys struck me here as in the Rue des Postes, and the number of well-known names one heard among the boys was curious, and showed from what class this school is fed. Among the little ones I found a Maronite, and a young American from Mobile, who could hardly speak French yet, and was glad, poor child, to be addressed in his own language. The cosmopolitan character of France is well shown by the number of boys from different parts of the world whom one finds getting their education in her schools. At Saint Louis I noticed a boy whose face was evidently that of an Oriental, and found on inquiry that he was the son of a Persian of rank, and had been sent there all the way from Persia.

The instruction at Vaugirard, having the degree of bachelor or the Government schools in view, cannot but follow, in general, the same line as that of the *lycées;* the tutoring is the great difference. The house, class-room, and recreation arrangements have also a general similarity with those of the public schools, but the sense of a more agreeable, happier, and milder life than that of the *lycée* is felt at Vaugirard, and more at Vaugirard than in the Rue des Postes; for Vaugirard, though still Paris, is the very outskirts of Paris, and of the convent quarter of Paris, a region full of trees and gardens. The Jesuit school is at the extremity of Vaugirard and gets the air of the country. In the Rue des Postes, too, the boys are older, and it is for the little boys that the cast-iron movement of the *lycée* appears most dismal, and the guidance of the ecclesiatical hand in bringing them up seems most protecting and natural. Something of this eccle-

siastical shelter we are used to in the great schools and universities in England; and perhaps it is on this account that in spite of all which is to be said against the Jesuits and their training, I could not help feeling that the Vaugirard school was of all the schools I saw in France the one in which I would soonest have been a school boy.

Sorèze, Lacordaire's school, which I have elsewhere * described, was a first-class private school under the Dominicans, as Vaugirard under the Jesuits. The law forbids the title of *lycée* or *collége* to be taken by any private establishments, but the Minister of Public Instruction can authorize certain old established schools of this kind to keep the name of *collége* if they have been used to bear it. It is in this way that two out of the seven great classical schools of Paris, *Rollin* and *Stanislas*, get the title of *collége*. They, however, though not state establishments, not only follow the same course of teaching as the *lycées*, but employ professors of the same stamp. Private establishments are bound, as I have already said, to have for their head the holder of the degree of bachelor at least, or else of a certificate of capacity; but for their assistant teachers they may employ whom they will. But they are bound to keep a register with the full name, age, and birthplace of each assistant whom they employ, and to produce it whenever the inspector requires. And the authorities of public instruction have the power,† in a case of misconduct or immorality, to reprimand, suspend, or altogether interdict from teaching, either the head of a private school or any of his assistants, with the right of appeal, when the penalty goes so far as suspension or interdiction, to the Imperial Council in Paris. A teacher interdicted cannot be employed thenceforth in any school public or private. These powers seem extensive; but I am bound to say that all the private teachers whom I asked informed me that they were exercised in a way to cause no complaint; and that neither as to authorizing the establishment of a private secondary school in the first place, nor as to inspecting or interfering with it afterwards, was the action of Government in the least degree unfair or vexatious.

The *séminaires*. The *séminaires*, where the clergy are educated, are under ecclesiastical management. They are nominally subject to state superintendence;‡ but so far as I could learn this superintendence comes to nothing, and no inspector ever enters them.

Discipline in the French schools. The long school hours and the constant supervision in the French schools are favourable to discipline, and the Frenchman is born with a turn for military precision and exactitude which makes the teacher fall easily into the habit of command, and the pupil into that of obedience. French teachers who have seen our schools are struck with the greater looseness of order and discipline in them, even during class hours; and I have seen

* See *A French Eton, or Middle-Class Education and the State.*

† *Loi du* 15 *Mars* 1850 *sur l'enseignement*, art. 67, 68.

‡ *Loi du* 15 *Mars* 1850, art. 70.

large classes in France worked and moved with a perfection of drill that one sometimes finds in the best elementary schools in England, but rarely, I think, in our classical schools. Our government through prepositors or prefects, and our fagging, are unknown in the French schools; for the former, the continual presence and supervision of the *maître d'étude* leaves no place; the latter is abhorrent to French ideas. The set of modern opinion is undoubtedly against fagging, and perhaps also against government through the sixth form; one may doubt, however, whether the force of old and cherished custom, the removal of excess and abuses in the exercise of these two powers, and certain undeniable benefits attending that of, at any rate, the latter of the two, may not yet long preserve them in the great English schools. The same can hardly be said of flogging, which, without entering into long discussions about it, one may say the modern spirit has irrevocably doomed as a school punishment, so that it will more and more come to appear half disgusting, half ridiculous, and a teacher will find it more and more difficult to inflict it without a loss of self-respect. The feeling on the continent is very strong on this point. The punishments in the French schools are impositions and confinement; at Vanves I saw a kind of *punishment-parade*, the culprits being marched round and round a court. The employment of punishments, however, is certainly less than with us, and here, too, the great number of school hours saves the French schoolmaster from a difficulty. It is a part of the censor's business to collect, and to give at the end of every week to the provisor, a report from the usher on the behaviour, and from the professor on the progress, of each boy in the school; at the end of every quarter the provisor forwards the summary of these reports to the parents.

Instruction.

Greek.

Comparing the instruction with that of our own great classical schools, one is at once struck by the fact that the French schools carry Greek by no means so far as we do. Their Greek composition is next to nothing; there is no Greek verse, and even the Greek exercise has lately been abolished in *troisième* and *seconde*, on the ground that it was the merest grammatical exercise, not carried far enough to give the pupil the least power of really writing Greek, and that an exercise of this sort was out of place after *troisième* began. Different *lycées* have a special reputation for different branches of instruction:—thus Saint Louis is famous for science, Louis-le-Grand for the humanities generally, Charlemagne for Greek; but even at Charlemagne the upper boys, whom I heard at lesson under a distinguished professor, M. Boissier, had certainly nothing like the mastery of Greek of the upper boys in our best public schools; one might almost say that in the iambics of Sophocles they could get along pretty well, but that any chorus was decidedly too much for them. The Greek lessons are much fewer in number than with us. The grounding seemed to me good enough. The little boys in *sixième* whom I heard at *Bonaparte* saying their Greek grammar left nothing to be desired.

In Latin the French schools seem to me quite equal with ours; perhaps it is from the affinity of the langurge with their own, but they seem, if there is a difference between our best schools and theirs, to be more at home with Latin, and to take to it more kindly than we do. They do not, however, get through nearly so much of the Latin authors, but their Latin composition, prose and verse, is very good. From the specimens I saw I should say they had a Ciceronian and Virgilian tradition just like some of our famous schools, and produced work very much the same as the best of them. In this respect both we and they, I think, beat Germany, though a German boy has a fuller command of a Latin of a certain kind than either our boys or the French. Latin.

Both in Latin and Greek the quantity of writing work done by the French boys strikes an Englishman with astonishment; the professors seem to be extraordinarily fond of *versions dictées* as they are called; a passage from a classic is dictated, the boy takes it away with him, translates it out of class hours, and a good deal of time in a subsequent class hour is given to the revision of this translation of his. A day boy sometimes makes strange work of the passage dictated, and then, as he has not the *étude* to do his translation in, gets no opportunity of setting himself straight, and is altogether bewildered. I cannot but think that the French might with advantage write a good deal less, and adopt our plan of making the boys learn and say their lesson out of a book a good deal more. In our elementary schools I have often regretted that the master teaches the lessons so much, instead of making the boys, as in our classical schools, learn it beforehand; the French professors proceed more like our elementary teachers in this respect, and then, when the master *teaches* the lesson, of course there has to be a great deal of going over it again afterwards, in the *étude* or the *conférence*. The *lycées* have much more of this than our schools, and I am inclined to prefer, at least for teaching classics, our plan, which makes the boy depend more on himself, and, above all, takes him through a great deal more of an author. *Versions dictées.*

The French use books of selections a great deal, and I believe Rugby was rather an exception to the common rule of the English public schools in using them in the higher forms so very little. I suppose no one who has been used to the Rugby practice can much like the other. About their school books in general the French are conservative, and amusing stories are told of German scholars at Paris pointing out errors in the received school books, and getting a fine, instead of thanks, for their pains. It is a just instinct, however, which makes the French university cling to fixity in its elementary school books, and their boys learn grammar better than ours in consequence. A boy does not enter into the *rationale* of grammar; what he wants is a system of clear categories to refer the cases in his reading to. What is that infinitive?—It comes under the *hinc spargere voces* category;— School-books.

Why is it *patientiâ* after *abutêre?*—By the rule that *utor* and its compounds take an ablative. This is a good mental exercise for a boy, and he is capable of it; but that he may practise it with advantage, his categories should be as plain and few as possible, and should be firmly fixed in his own mind and in his questioner's. When he is capable of comprehending the *rationale* of grammar (quite another affair), he is of an age to consult a grammar, not learn it, and his grammar can then hardly be too philosophical and full. Half a dozen grammars of this kind are sufficient for the needs of a whole school. But we, and the Germans too, keep trying to put the *rationale* of grammar into the first grammar, the grammar that is learnt, not consulted; the boy's mental digestion rejects the *rationale*, and meanwhile the fixity needed for categories to which he is promptly and precisely to refer all his cases,—an effort of which his mind is perfectly capable,—is sacrificed. Thus, with all the faults of the old Latin grammar, 20 years ago boys of 12 and 13 did their grammar work a thousand times better than they do it now, because the substance of fixity of categories had not then been abandoned for the shadow of *rationale*. Up to a certain point, therefore, I think the French authorities wise in their zeal for fixity of text-book.

The mother-tongue.

From the bottom of the French schools to the top one finds recitation, reading, and exercises, in the mother tongue. Writing French is as considerable a part of a boy's work as writing Latin. So far is this pushed that there are to be found in France hostile critics of the *lycées* who say that to judge by their teaching you would suppose every boy in them was meant to be afterwards by profession a man of letters. It is probable too much stress may be laid on teaching matters of literary workmanship and style, graces which, after all, *nascuntur non fiunt;* but the reading and reciting from the classics of the mother tongue and the getting some knowledge of its literary history, is clear gain; and if the French attempt to teach too much, and of what cannot be taught, in style and the art of writing, we do not, or at least did not when I knew our schools, attempt to teach enough, and of what can.

Modern languages.

M. Duruy is very anxious to promote the teaching of modern languages in the schools, and that the boys should learn to speak them, not to read them only. From the beginning of the grammar division to the top of the school modern languages form a regular and seriously taught part of the school work, and I have heard the little boys in *sixième* patiently practised at speaking sentences in English or German. This attempt of course necessitates the employment of foreign teachers, and then comes the well known difficulty as to discipline, which the French experience just as we do. Perhaps, from the many other fields open to Englishmen, the supply of good English teachers abroad is particularly limited; that of Germans seemed to me considerably better. I mean, it is much more common, I think, to find an educated, competent German, a man in whom his employers have a good bargain, teaching in a French school, than to find an Englishman

of like stamp there. With these drawbacks much is not at present effected; but more, I think (still speaking from my own remembrance of our great schools), than is done with us; partly because the conditions of the problem are better understood, partly because its solution is more seriously attempted.

Geography forms the object of distinct lessons of which the graduated course is traced in the ministerial programme. Neither the German classical schools nor ours teach it, in general, in this manner; and after the elementary classes it is surely best taught in connexion with other lessons, which afford plenty of occasions for teaching it, and give a better chance, by attaching it to interesting events, of making it likely to be remembered and more than a dry and soon lost nomenclature. The professor in France uses the black board and traces outline maps with an adroitness and accuracy which may often be seen in our elementary schools, but not often, I think, in our classical. Geography.

History, too, is taught according to a graduated programme, which begins in the lowest class of the grammar division with the East,—Egypt and Asia,—and proceeds through Greece and Rome to the history of the modern nations, finishing, as I have already said, in the philosophy class with contemporary history. The programme system,—the programme being drawn, as it is, by a competent hand and with great care,—seems to me of service here. It gives the teacher himself a valuable clue, serves to guide his reading and leads him to group his ideas and methodize his teaching. I do not think any educated man could read the programme of middle-age and modern history for the French *lycées* without profit, without being reminded of gaps in his knowledge and stimulated to fill them. The history lessons I heard given to the higher classes were evidence in favour of the system, for they were well arranged and very interesting. History.

Modern languages, geography, and history have an *agrégation* of their own; that for modern languages having been introduced by the present minister. They have thus, of course, special professors, and are not taught, as I remember them taught in our schools, by each classical master to his own form.

As often as I approach mathematics and science, I am confronted by my own ignorance of them, and warned not to say much. Something, however, of what I heard and saw I must report as well as I can. The French have a reputation for their teaching of these matters; their language is excellent for it, and their text-books are clear and good. But what strikes one most, is the prominence of oral teaching here, and oral teaching seems here in its right place. The text-book is merely the basis of the professor's instruction, and by itself can give no idea of what the French mathematical teaching is. In these studies, again, the programmes seem to be of advantage, and the system of revision and repetition of lessons, which in classics I thought pushed too far, is so serviceable in mathematics and science that it may well have got its currency from its use- Mathematics and the natural sciences.

fulness in these branches. I never shall forget the impression made upon me by teacher and pupils in the class of *mathématiques spéciales* at Saint Louis, under a young and distinguished professor, M. Vacquant. Teaching so vivid, and a class of 50 so borne along, I should hardly have thought possible. No pupil is allowed to enter the class of *mathématiques spéciales* without being first examined to test his ability to profit by it. But down to the arithmetic of the lower classes the teaching, in this branch, seemed to me always searching and good. A distinguished Swiss, well known to many persons in this country, M. William de la Rive, told me he could trace in the educated class of Frenchmen a precision of mind distinctly due to the sound and close mathematical training of their schools. I heard, too, several lessons in physical science; M. Duruy has sought to strengthen the whole of the scientific teaching at the same time that he did away with the *bifurcation*. The mathematical lessons, however, seemed to me better than the lessons in physical science; partly, no doubt, because the latter need an apparatus for illustration and experiment which the former do not, and which a school cannot always procure in due abundance and efficiency. But the French lay the greatest stress on the importance of teaching the natural sciences, and regard mathematics as subsidiary to this object; they severely criticise the Cambridge teaching for devoting itself so exclusively to pure mathematics, and making the instrument into an end. The barrenness in great men and great results which has since Newton's time attended the Cambridge mathematical teaching is mainly due, they say, to this false tendency. Comte's judgment on the study of sidereal astronomy is well known, and the leaning of practice and opinion among French mathematical teachers at present tends in the same direction as that judgment.

Foreign judgment of English mathematical teaching.

In general, the respect professed in France for the mathematical and scientific teaching of our secondary schools is as low as that professed for our classical teaching is high. A French schoolmaster who had seen a number of our schools said to me: "Your boys do not learn arithmetic, the science of numbers; "they learn to reckon (*le calcul*)." And every one who has watched a French teacher employing with his pupils the simple process called *réduction à l'unité*, and has also watched an English boy's bewildered dealing with a rule of three sum, and heard his questions about its "statement," which to him is a mere trick, learnt mechanically, not understood, and easily misapplied, has a good notion of the difference between the arithmetic of French and of English schools. I must not forget to add that our geometry teaching was in foreign eyes sufficiently condemned when it was said that we still used *Euclid*. One of the great sins of Cambridge was her retention of *Euclid*. I am bound to say that the Germans and the Swiss entirely agreed with the French on this point. *Euclid*, they all said, was quite out of date, and was a thoroughly unfit text-book to teach geometry

from. I was, of course, astounded; and when I asked why *Euclid* was an unfit text-book to teach geometry from, I was told that Euclid's propositions were drawn out with a view to meeting all possible cavils, and not with a view of developing geometrical ideas in the most lucid and natural manner. This to me, in my ignorance, sounded plausible; but at any rate the foreign *consensus* against the use of *Euclid* is something striking, and I could not but call the Commissioners' attention to it.

Religious instruction.

I have several times mentioned the *aumôniers*, or chaplains, attached to the French public schools. None of these schools, secondary or primary, are secular schools; in all of them religious instruction is given. It is given, too, in the vast majority of private schools. An hour's lesson in the week, certain exercises and prizes in connexion with this lesson, and service on Sundays, are what this instruction amounts to in the secondary schools. The provisor and the chaplain regulate it between them; that of Catholic boys is under the inspection of the bishop of the diocese or his delegate, in concert with the provisor. Protestant and Jewish boys receive the religious instruction of their own communion, regulated, *mutatis mutandis*, precisely like that of Catholic boys. The great *lycées* of Paris have Protestant and Jewish chaplains attached to them just as they have Catholic chaplains. Where Protestants or Jews are not numerous enough for the school to have a special chaplain for them, boys of those persuasions still receive their religious instruction from ministers of their own creed appointed to visit them, and are entirely exempted from the religious instruction of the Catholics. I cannot myself see that the religious lessons, (I do not, of course, speak of the services and ordinances of religion) come to very much in secondary instruction, though I must think, differing in this respect from many liberals, that they have an important and indispensable part in primary. But it is indisputable that they give rise neither in France nor Germany to any religious difficulty, as we say, whatever; they are regulated with absolute fairness, and there are no complaints at all of improper interference and proselytism. This, I say, is indisputable; and Protestants and Jews would testify to it as much as Catholics.

Realschule instruction.

Hitherto all the schools spoken of have been classical schools, with Latin and Greek for the staple of the instruction, and a greater or less admixture of mathematics and science with these. But in France, as elsewhere, an important sign of the times is the dissatisfaction with the predominance and omnipresence of Latin and Greek in secondary instruction. The greatest lover of the classics must admit that the modern spirit shows a certain hostility to them; and it is remarkable that in the secondary schools* of that great manifestation of the modern spirit, the French revolution, only two professors out of fourteen were assigned to classics and *belles-lettres*. Napoleon, as I have already mentioned, did away with

Recent attempts to develope it in France.

* The central schools instituted by the Convention in 1793.

the central schools, and restored Latin and Greek to their old supremacy, but the *bifurcation*, which began as early as 1821, showed the tendency to elude, when it was impossible to gainsay, that supremacy. The upper primary schools, which were instituted by M. Guizot's school legislation in 1833, were another attempt to get rid of difficulties caused by that supremacy. The two great municipal schools of Paris, the *Collége Chaptal* and the *École Turgot*, were another. The *Collége Chaptal* has 1,000 scholars, 600 of of them boarders paying 40*l.* a year. The *École Turgot* takes day scholars only, paying from 6*l.* to 7*l.* a year. The director of this latter school, which I visited, is M. Marguerin, a gentleman who was sent by the Prefect of the Seine to see our secondary schools in London, and whose report on what he saw there is well worth reading. In both these establishments Latin and Greek are wholly excluded from the school course, which is filled by French, modern languages, mathematics, science, and the other parts of what is called a modern education. The Christian Brothers have a successful school of the same kind at Passy. The friends of this new instruction were strong enough to insert in the organic school law of 1850 a paragraph binding the minister to appoint special juries to give certificates to the imparters of the *enseignement professionel*, as it was then called.* Commissions were set to organize it, but while they proceeded slowly with their task, it so far organized itself that 64 *lycées* out of 74, and nearly all the communal colleges made some provision for giving it; and last year, of the 66,000 boys in the schools of the state, 20,000 were receiving this modern instruction, while in private schools of one sort or another 40,000 boys were receiving it..

M. Duruy is entitled to speak for his own 20,000 boys at any rate, and he declares that, in their case, with hardly any exceptions, this instruction proved a failure.† The commissions appointed to study the subject reported that this instruction was a failure, too, in the vast majority of private schools. Its teachers were proceeding at random without any distinct and well-digested plans; they were ill paid, and their position was uncertain; they were in general without the requisite collections and apparatus. A *grande inutilité*, M. Duruy says, has to be transformed into an effective institution.

M. Duruy's *Enseignment secondaire spécial.*

The law of the 21st of June of last year is designed so to transform it. On the one hand, say the authors of that law, to balance the old so-called liberal professions, for which a classical education was supposed to be the best preparation, there have arisen in modern society a number of industrial, commercial, and agricultural professions which did not exist a hundred years ago, and which require a different preparation from that for the old professions. On

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* "Le ministre, sur l'avis du Conseil supérieur de l'instruction publique, instituera des jurys spéciaux pour l'enseignement professionel."—*Loi du* 14 *Mars* 1850 *sur l'enseignment*, art. 62.

† *Circulaire du* 2 *Octobre* 1863, *relative à l'enseignement professionel.*

the other hand, the superior primary instruction of 1833, with a course of study not ill adapted to the requirements of these new claimants, did not take, because it had an air of inferiority about it from its connexion with the primary schools, and "on veut rarement," says the reporter to one of the commissions which examined the new law, "avoir l'air d'être au niveau des humbles." So out of social vanity boys flocked into the Latin and Greek classes for whom these classes were not suitable; but the vanity, as M. Duruy shrewdly enough says, which sets people against non-classical studies, does not carry them so far as to make them pursue classical studies with any success.

It was required, for the sons of a new class of professional men not socially inferior to the members of the liberal professions, to provide schools of equal rank with the classical schools. To effect this, two parallel courses of secondary instruction have been formed; a secondary instruction in arts and sciences, for boys destined to agriculture, commerce, or manufactures; a secondary instruction in classics for boys destined to the so-called liberal professions. The two courses are to be of equal rank, held in the same institutions, and furnished with the same encouragements. The teachers of the one are to enjoy an equal position and to offer equal guarantees with those of the other.

The new legislation, therefore, unites in the public schools the classical and non-classical pupils in the same buildings, under the same government, but gives the non-classical pupils separate lessons, and separate professors. It establishes a normal school, occupying the old Benedictine abbey of Cluny, for the training of the latter. It provides a distinct aggregation for them, as the professors of classics, mathematics, and modern languages have a distinct aggregation. It fixes for them a scale of payment. It provides a separate supply of scholarships for their pupils, and it draws out a separate set of programmes for the new instruction. It institutes a local body, with the title of *conseil de perfectionnement*, in connexion with each establishment where the new instruction is given, and a *conseil supérieur de perfectionnement* to advise the minister in Paris. Finally, it extends to private schools giving the new instruction that power of obtaining, if judged worthy, from the communes, departments, or state, a building and a subvention, which the law of 1850 bestowed on the private secondary schools.

It is the French theory that the State's duty is to establish models and so improve private institutions. M. Duruy has certainly taken great pains to adapt his model to the purpose for which it is wanted. The pupils of the new instruction are likely to have time for only a three or four years' course, instead of the seven or eight years' course of the classical school; and the new instruction, therefore, is arranged for four years, and for boys from about the age of 12 to 16. Even this shorter course is more likely than the classical course to be abridged by the boy's sudden withdrawal; it has been attempted, therefore, to make

as far as possible each year's plan of study complete in itself. Neither for the professor, nor for the pupil, has the culture to be carried so far as in the classical school; for both, therefore, the highest class of payments is cut off. In Paris the rate of payment to the professors of the new instruction is about the rate of payment to classical professors in the provinces; out of Paris, something below this; but then these new teachers will often come from the class where only primary instruction at present recruits for teachers, and to this class the rate of salary will appear good. The boys, whether boarders or day scholars, pay as in the elementary division and the grammar division of the classical school; the higher rates of *philosophie* and *mathématiques spéciales* are cut off. Provision is made for drafting into the classical school boys who show aptitudes which make the prolonged trainings, classical or mathematical, of that school, desirable for them.

The name of the new instruction was rather a matter of difficulty. It had got that of "professional," but this word gives the idea of a school where particular trades and businesses are learnt, and this is not the design of the new schools. "We do not," say their promoters, "put the workshop in the school: in these new esta-"blishments the teaching is still a means, not an end, and when the "pupil leaves them, the knowledge he possesses will be general "knowledge. The true professional school comes later; it is such "a school as the School of Commerce, or the School of Agricul-"ture, or the School of Woodcraft.' Others proposed the name "French;" we in England have inclined to that of "modern"; but the name actually adopted is that of "special," not a very good one as it seems to me. *Enseignement secondaire spécial* is the authorized description of the new instruction.

Leaving out Latin and Greek altogether, it comprehends the mother tongue and its literature, history, geography, mathematics, natural science, modern languages, information of common use about the government, laws, administration, commerce, industry, and agriculture of France; accounts, book-keeping, drawing, music, and gymnastics. Mathematics and science are taught with a direct view to application; the three great classes of professions, industrial, commercial, and agricultural, for one or other of which every pupil is supposed to be destined, being had in mind. Instruction in morals and religion forms, as in all the public schools, part of the course. The new and elaborate programmes for the whole course are drawn with great care, and are well worth studying. They are contained in a volume which has recently issued from the department of public instruction at Paris.* Taking the boy on his leaving the primary school at 11 or 12, when he is supposed (and this is worth remarking) besides his religious instruction, reading, and writing, to possess the elements of grammar, the four

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* *Enseignement secondaire spécial; décrets, arrêtés, programmes et documents relatifs à l'exécution de la loi du 21 Juin* 1865 : Paris, Imprimerie Impériale, 1866.

rules of arithmetic, both in whole numbers and in vulgar and decimal fractions, and the metric system, it gives him first a preparatory year, in which what he possesses is perfected, his slight smattering of history and geography exchanged for a methodical foundation of those studies, a modern language, geometry, and natural history begun. Then, by a regular gradation, which yet leaves the instruction of each year as far as possible a complete whole in itself, it carries him through a four years' course in the matters named by the law. The attention paid to teaching the mother tongue, and not only its history and literature but how to write it, is as remarkable in this course as in that of the classical schools. But perhaps the greatest novelty is the information on common subjects, as it may in brief be called. The choice and arrangement of this information, simple matter as it seems when it stands in the programme, must have cost much thought and pains, there being such a lack of models to follow; and it seems to me most successful. The programme headed *législation usuelle*, giving the outline of a course on the public and private law and the administrative organization of France—how the government is composed, what are the functions of its different departments, how the municipalities are constituted, how the army is recruited, how taxes are raised, what is the legal and judicial system of the country, how in the most important relations of civil life, marriage, inheritance, holding property, buying, selling, lending, borrowing, partnership, the laws affect the citizen,—this programme in particular seems to me so well composed, both for what it inserts and what it omits, and so suggestive, that I reprint it at the end of this report for the Commissioners' information. The programmes on the legislation of commerce and industry, and on rural, industrial, and commercial economy, are also very interesting; but each of these is more particularly designed for a single division of pupils, according to the class of profession to which they are destined; whereas the programme for *législation usuelle* is designed for all, containing what it is important for all alike to know; and therefore it is not so easy a programme to prepare, and has a more general interest when prepared.

It is as yet too soon to judge of the success of this important addition of M. Duruy's to the public secondary instruction of France, but a correspondent of the *Museum*, an English educational periodical deserving to be more widely known than it is, seems to me not far from the truth, when he says that to find a population for these new schools is the difficulty, as the rich class of people wanting to use them is small, and the large class of people wanting to use them is poor. The loud demand for them comes chiefly from a certain number of rich industrialists, with views about education and opposed to the tyranny of Latin and Greek, who yet wish their sons' school to be a school of as high social rank as the classical school. This has been done by giving the new instruction the title and apparatus of secondary instruction, and its cost, of course, along with them. A boarder in one of the new schools pays from 40*l.*

to 45*l.* a year; a day scholar pays from 8*l.* to 10*l.* The rich industrialist with views about education is of course enchanted to pay this, and give his boy the prestige of a *lycée* at the same time that he gets rid of what he thinks its rubbish of Latin and Greek; but these rich industrialists are not very numerous. An immense class of well-to-do parents, whom M. Duruy would gladly see relieving the classical school of what he calls its *non-valeurs*, boys *sans aptitude pour les belles-lettres*, and sending them to the modern school, have still, and for some time are likely to have, the notion that a social stamp is put upon a youth by a classical education, and they continue sending their boys to the classical school to obtain this stamp. On the other hand, the instruction of the modern school is the very thing which the artisan class, the higher portion of it at any rate, desires; it is the supreme object, in the way of education, of the ambition of this class, which is quite free from any genteel weakness for Latin and Greek; but here the rates of payment form an insuperable obstacle.

Nevertheless, as one may say of flogging, that the set of the modern spirit is so decisively against it that it is doomed, whatever plausible arguments may be urged on its behalf, so is the set of the modern spirit so decisively in favour of the new instruction, that M. Duruy's creation, whatever reasons may be given why it should not succeed, will probably in the end succeed in some shape or other. This current of opinion is, indeed, on the continent, so wide and strong as to be fast growing irresistible; and it is not the work of authority. Authority does all that can be done in favour of the old classical training; ministers of state sing its praises; the reporter of the commission charged to examine the new law is careful to pay to the old training and its pre-eminence a homage amusingly French.* Men of the world envy us a House of Commons where Latin quotations are still made, school authorities are full of stories to show how boys trained in Latin and Greek beat the pupils of the new instruction even in their own field. Still in the body of society there spreads a growing disbelief in Greek and Latin, at any rate as at present taught; a growing disposition to make modern languages and the natural sciences take their place. I remark this in Germany as well as in France, and in Germany too, as in France, the movement is in no wise due to the school authorities, but is rather in their despite, and against their advice and testimony. I shall have an opportunity, at the end of my report, to say a few words respecting what appears to me the real import of this movement, and the part of truth and of error in the ideas which favour it; all I wish now to lay stress upon is its volume and irresistibility.

Superior instruction.

I have incidentally said something of the superior instruction of France as I went along, and at the outset I disclaimed all pretension to treat it fully; but a very short notice of it as a

* "On ne saurait trop exalter l'importance sociale des lettres classiques. *Ce sont elles qui ont assuré depuis des siècles la suprématie intellectuelle de la France.*" —*Enseignement secondaire spécial*, p. 438.

whole ought to be given before I pass elsewhere. The superior instruction of France consists of the faculties, and of certain other institutions, such as, for instance, the College of France, the Museum of Natural History, the School of Living Oriental Languages,—where the studies and lectures are of a pitch which presupposes that the student's secondary instruction is completed. The students of French superior instruction are not, like our undergraduates at Oxford or Cambridge, boarded in colleges, they only attend lectures. There were in 1862 no less than 23,371 students in the French faculties; 14,364 of this number were in those of Paris. There are five faculties: theology, law, medicine, sciences, and letters. The faculties are attached to the academies, of which by the law of 1854 there are, as I have more than once said, 16.* It is only sciences and letters which are represented in every academy. Of each of these, therefore, there are 16 faculties in France, with a total of 97 chairs for science, 86 for letters. Large towns, not the seat of a faculty of sciences or letters, have the power of establishing auxiliary schools† of superior instruction, attendance at the lectures of which is allowed to count, within certain limits, as attendance at faculty lectures. To pass beyond the degree of bachelor it is necessary to have attended certain courses of professors' lectures. Of course the chairs of a faculty in Paris are almost always much more numerous than in the provincial academies, and in the more important of these they are more numerous than in the less important. The faculty of sciences has in the academy of Paris, for example, 18 chairs; in the academies of Clermont, Nancy, and Poitiers it has but four. These four, which may be taken as representing the absolute necessary for a faculty of science, are the following: physics, chemistry, pure and applied mathematics, natural history. In letters the Paris faculty has 11 chairs, the provincial faculties have five each, which in all of them, except that of Toulouse, are the same: ancient literature, French literature, foreign literature, philosophy, history. Toulouse substitutes for chairs of ancient and of foreign literature chairs of Greek and of Latin literature.

Faculties.

Letters and sciences.

Theology has seven faculties, five for the Catholics and two for the Protestants. The seats of the two Protestant faculties are Montauban and Strasburg. The chairs of these faculties are nowhere more than seven or fewer than five. The subjects common to them all are dogmatic theology, ecclesiastical history, and (here I use the French titles) *éloquence sacrée*, and *morale évangelique*. The faculty of theology, which has in all 42 chairs, is the least important of all the faculties in France, because the Church of Rome does not recognize its degrees, and they have no canonical validity. Of course, for those who aspire to be professors in this faculty, its degrees and attendance at its lectures

Theology.

* Two more, Chambéry and Algiers, have been added, but neither of them is as yet the seat of any faculty.

† *Écoles préparatoires à l'enseignment supérieur des sciences et des lettres.*

are indispensable; and by an ordinance of the Government of 1830 its degrees are required for all ecclesiastical preferment down to the post of *curé de chef-lieu de canton* inclusive; but as a certain number of years' pastoral service was to be accepted as an equivalent for these degrees, and they were not to be required of anybody who when the ordinance appeared was more than 21 years old, they have not come to much. The French church is not eminent at present for theological learning, and what it has does not come to it from the University.

Law. Law has 11 faculties, with 98 chairs. The great chairs in this faculty are those for the *Code Napoléon*, Roman law, civil procedure, commercial law, administrative law. The *Code Napoléon* has to itself six chairs at Paris and three in each of the other 10 faculties. Two of these 10, Nancy and Douai, have been recently added, and the Commissioners may like to know how an additional faculty, when wanted, is provided. The town of Nancy, already the seat of an academy, of a faculty of sciences, and of a faculty of letters, desired a faculty of law also, Lorraine having formerly, under its old sovereigns, possessed one. The State agreed to establish one there, the municipality of Nancy undertaking on its part to raise every year and pay to the treasury a sum reimbursing the State for its outlay on the new faculty, its professors, *agrégés*, and courses of lectures Douai got its faculty of law on the same terms. The State gives the character of a national institution, the guarantee of publicly appointed teachers, and the privilege of conferring degrees; and the town is abundantly willing to pay for this.

No one in France can practise as a barrister (*avocat*) without the degree of licentiate of law. No one can practise as a solicitor (*avoué*) without the *certificat de capacité en droit*. Let us see what the possession of these two diplomas implies.

A licentiate of law must first have got the degree of bachelor of law. To get this he must have the degree of bachelor of letters, have then attended two year's lectures in a faculty of law and undergone two examinations, one in Justinian's *Institutes*, the other in the *Code Napoléon*, the Penal Code, and the Codes of Civil Procedure and Criminal Instruction. Dues for lectures, examinations, and the diploma make the diploma of bachelor of law cost, when the candidate has obtained it, nearly 25*l.** The new bachelor must then, in order to become licentiate, follow a third year's lectures in a faculty of law, undergo two more examinations, the first on the *Institutes* of Justinian again, the second on the *Code Napoléon*, the Code of Commerce, and Administrative Law, and must support theses on questions of Roman and French Law. The degree of licentiate costs 24*l.*

A solicitor, to obtain the "certificate of capacity in law," must for one year have attended lectures in a faculty of law, embracing in this one year both the first and the second year's course of

* To be exact, 620 fr.

lectures on the *Code Napoléon*, and on Civil and Criminal Procedure, and undergoing an examination on the subject of each course. The cost of this certificate, all fees for lectures, &c., included, is from 11*l.* to 12*l.**

The professors in the faculty of law are men eminent in the knowledge of their several branches. The Commissioners will doubtless compare this regular and educative course of legal instruction with the way in which a barrister is left, with us, to pick up the trick of his trade as he likes, and they will bear in mind at the same time the resources of our universities and Inns of Court for legal education, and how our universities and Inns of Court apply them.

Medicine has three great faculties, with 61 chairs. The faculties are at Paris, Montpellier, and Strasburg. To be a physician or surgeon in France, a man must have the diploma of doctor either in medicine or in surgery. To obtain this, he must have attended four years' lectures in a faculty of medicine, and had two years' practice in a hospital. When he presents himself for the first year's lectures, he must produce the diploma of bachelor of letters; when for the third that of bachelor of science, a certain portion of the mathematics generally required for this degree being in his case cut away. He must pass eight examinations, and at the end of his course he must support a thesis before his faculty. His diploma, by the time he gets it, has cost him a little over 50*l.*† Medicine.

A medical man with a doctor's degree may practise throughout France. To practise without it, a man must have the diploma of *officier de santé*. To practise without the diploma either of doctor or of *officier de santé* is penal. The *officier de santé* must have attended three years' lectures in a faculty and had two years' practice in a hospital, and he must pass five examinations and write a paper bearing on one of the subjects of his instruction. Before he can be admitted to attend lectures in a faculty of medicine he must produce a *certificat d'examen de grammaire*, a sort of minor bachelor of arts degree, turning on the matters taught in *quatrième*, the highest class in the grammar division of the *lycées*. Thus his having learnt some Latin and Greek is, our British Association will be shocked to hear, rendered necessary. His diploma costs him altogether about 32*l.*, but it only authorizes him to practise in the department where he has been received *officier de santé*, and he may not perform any great operation except in the presence of a doctor.

A kind of branch of the faculty of medicine is formed by the *Écoles supérieures de Pharmacie*, three in number, with 19 chairs. These schools, too, are at Paris, Montpellier, and Strasburg. Chemistry, toxicology, pharmacy, and natural history are the main matters of instruction. For medicine and pharmacy

* The exact sum is 285 fr.

† 1,260 fr. is the exact sum.

there are, as for sciences and letters, auxiliary schools* in a number of the large towns of France, with professors only a grade below the faculty professors, with lectures allowed to count, to a certain extent,† as faculty lectures, and with the right of examining for some of the lower diplomas and granting them. No one can practise as a druggist or apothecary in France without getting either a first or a second class diploma. A first class diploma necessitates three years' study in an *École supérieure de Pharmacie*, three years' practice with a regularly authorized apothecary, and the passing eight examinations, the last of which cannot be passed before the age of 25. The cost of obtaining this diploma comes to nearly 56*l*. A *pharmacien* with this first class diploma may practise anywhere in France. A second class diploma only entitles its holder to practise in the department chosen by him when he entered his name for lectures. But to hold this second class diploma he must have attended faculty lectures for one or two years, have practised six or four‡ years with a regular *pharmacien*, and passed four or five examinations, for the last of which he must be 25 years old. The candidate for the first class diploma must have the degree of bachelor of science before he can enter himself to follow the lectures of the pharmacy school; the candidate for the second class diploma must have the *certificat d'examen de grammaire* mentioned above.

I must add that our whole regulation, or rather non-regulation, of the teaching and practice of pharmacy strikes the best judges on the continent with perfect astonishment, and is condemned there with one voice. I see that an eminent English physician declared the other day, at the meeting of the British Association, that while the practitioner whom in England, where he knows less of chemistry than anywhere else, we are pleased to call a chemist, can in France or Germany perform any analysis which the physician may require of him, in this country he is in nine cases out of ten quite incompetent for such a task. This exactly corresponds with what I have heard on the continent. Here, at any rate, we can trace a clear practical inconvenience from our educational shortcomings. Signor Matteucci, whom I have already quoted, a most favourable judge of England, who, though he says Oxford and Cambridge are but *hauts lycées*, hopes we shall long keep them, told me that he considered the strengthening of our superior instruction, especially in the direction of the sciences, our most pressing need of all in the matter of public education.

In Paris the seat of the faculties of theology, sciences, and letters is at the Sorbonne; of that of medecine, at the *École de*

* *Écoles préparatoires de médecine et de pharmacie.* There are 22 of them.

† For instance; for a doctor of medicine's diploma, three year's and a half attendance on lectures in an *école préparatoire*, and one year's in a faculty, is accepted in lieu of four year's attendance on faculty lectures. For a druggist's second class diploma, a year and a half's instruction in an *école préparatoire* is accepted in lieu of a year's instruction in one of the three *écoles supérieures de pharmacie*.

‡ A second year's attendance on lectures is accepted in lieu of two years' practice.

Médecine;* of that of law, at the *École de Droit*.† There are eight inspectors of superior instruction,—four for letters, four for sciences, one for medicine, and one for law. Six of the eight are members of the Institute, and their names will probably be familiar to the Commissioners: M. Ravaisson, M. Nisard, M. Dumas (the chemist), M. Le Verrier, M. Brongniart, and M. Charles Giraud. Their salary, like that of the faculty professors in Paris, is 12,000 fr. a year, a high salary for France; and the posts of inspector general and professor of superior instruction form a valuable body of prizes for science and literature. Each faculty has an aggregation, similar in plan to that which exists for the professors of secondary instruction, and which I have described; but for aggregation in a faculty very high and complete studies are necessary. In general the course of promotion is this; the intending *agrégé* first obtains the degree of doctor in his faculty, after being admitted *agrégé* he becomes assistant professor, and finally full professor. A full faculty professor must be 30 years old. The Dean of Faculty is chosen by the Minister of Public Instruction from among the professors of his faculty. While the minister has power to dismiss of his own authority the functionaries of secondary instruction, those of superior instruction can only be dismissed by imperial decree.‡ The faculties have also the right of proposing candidates for their vacant chairs, though the emperor, who nominates, is not bound to adopt their proposal.

Free or private courses on the matters of superior instruction cannot be publicly given, in France, without the authorization of the Minister of Public Instruction, who before granting it takes the advice of the prefect and the academy-rector for the locality where it is proposed to open them.

Other institutions in France for superior instruction.

Outside the faculties are a number of important state-establishments, all of them contributing to what may be called the higher instruction of the country. The most remarkable of these is the College of France, founded at the Renaissance, to make up, one may say, for the short-comings of the mediæval universities, and which has grown in scale, value, and consideration till it now has 31 professors, covering with their instruction all the most important provinces of human culture, and many of them among the most distinguished men § in France. The École des Chartes, the pupils of which have laboured so fruitfully among the archives of France and the early documents of her history, has seven professors. The Museum of Natural History has sixteen. The School of Living Oriental Languages has nine. The School of Athens

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* In the *Place de l'École de Médecine.*

† In the *Place du Panthéon.*

‡ *Décret organique du 9 Mars* 1852 *sur l'instruction publique*; art. 3.

§ Among them at the present moment are MM. Elie de Beaumont, Flourens, Coste, Franck, Laboulaye, Michel Chevalier, Alfred Maury, Munk, Caussin de Perceval, Jules Mohl, Stanislas Julien, Sainte Beuve, and Paulin Paris. The salary of a professor at the College of France is 7,500 fr. a year.

is designed to give to the most promising of the young professors, from the age of about 25 to 30, of French public instruction, the opportunity of for two years studying on the spot the language and antiquities of Greece. All who have made these a special object of study know what sound and useful memoirs have proceeded from pupils of the French School of Athens. I may mention, as a specimen, the memoir on the Island of Eubœa, by M. Jules Girard. All these establishments, with the *Bureau des Longitudes*, and the public libraries of the capital,—the great library in the Rue Richelieu, the Mazarine Library, the Sainte Geneviève Library, the Arsenal Library, and the Sorbonne Library,—are under the Minister of Public Instruction. Other ministers have special schools, some of which I have already mentioned, attached to their department. The Minister of War has thus the Polytechnic, Saint Cyr, and the Cavalry School of Saumur; the Minister of Marine has the Naval School and the Schools of Hydrography; the Minister of Finance has the School of Woodcraft (*École forestière*); the Minister of the Household has the School of Fine Arts; the Minister of Agriculture, Commerce, and Public Works has the Schools of Agriculture, the Veterinary Schools, the Schools of Arts and Trades, the Central School of Arts and Manufactures, the School of Commerce, the Schools of Mines and Miners, and the *École Impériale des Ponts et Chaussées*. The grants to the Institute and to the Academy of Medicine (a sort of medical institute) come into the estimates of the Minister of Public Instruction. Into his estimates come also all grants, whether for pensions, gratuities, missions,* publications, or subscriptions, which come under the head of grants for literature, science, and art. For 1865 these grants amounted to 680,000 fr. (27,200*l.*) The grants to the Institute and Academy of Medicine, grants which really come under the same category as the preceding, amounted to above 26,000*l.* more. These figures have an eloquence which I will leave the Commissioners, acquainted with our national expenditure for the advancement of literature, science, and art, to appreciate for themselves.

Use of such institutions.

Public establishments such as those which I have enumerated serve a twofold purpose. They fix a standard of serious preparation and special fitness for every branch of employment, a standard which acts on the whole intellectual habit of the country. To fix a standard of serious preparation is a very different thing, and a far more real homage to intelligence and study, than to demand, as we have done since the scandal of our old mode of appointment to public functions grew too evident, a single examination, by a single board with a staff of examiners, as the sole preliminary to

* It may be worth mentioning how, in France, a public department usually proceeds with a report like this of mine, for instance. It sends its reporter and receives his report, but it does not print and publish it in an official volume. It leaves its author to publish it as an ordinary book, the department, however, subscribing for 200 or 300 copies, which it distributes among institutions or individuals that it wishes to inform on the matter to which the book relates.

all kinds of civil employment. Examinations preceded by preparation in a first-rate superior school, with first-rate professors, give you a formed man; examinations preceded by preparation under a crammer give you a crammed man but not a formed one. I once bore part in the examinations for the Indian Civil Service, and I can truly say that the candidates to whom I gave the highest marks were almost without exception the candidates whom I would not have appointed. They were crammed men, not formed men; the formed men were the public school men, but they were ignorant on the special matter of examination, English literature. A superior school forms a man at the same time that it gives him special knowledge. The Commissioners have seen, no doubt, the recently published correspondence respecting some appointments to the British Museum. Whatever we may think of the points in dispute between Mr. Panizzi and the civil service examiners, it will hardly be maintained that the certificate of the examiners is an adequate guarantee for the fitness of an archivist or librarian for his functions. In France a public archivist or librarian does not go before one or two gentlemen of general education, and satisfy them on their general questions; he must have the diploma of *archiviste paléographe*. To possess this, he must have for three years attended lectures at the *École des Chartes*, free lectures, by men masters of their subject; at the end of each year he is examined, and if he cannot pass, is set aside; success in the third year's examination and a thesis publicly supported on some matter of palæography, bring him his diploma and his appointment.

Again: we have eastern possessions and interests compared with which those of all other European nations are insignificant; but France has a public school of living oriental languages and we have none. Professors, among whom are M. Stanislas Julien, M. Garcin de Tassy, and M. Caussin de Percival, teach there Arabic, Persian, Turkish, Armenian, Hindustani, modern Greek, Chinese, Malay, and Japanese. And pupils from all parts of Europe come to their instruction.

A second purpose which such institutions serve is this. They represent the State, the country, the collective community, in a striking visible shape, which is at the same time a noble and civilising one; giving the people something to be proud of and which it does them good to be proud of. The State is in England singularly without means of civilization of this kind; a modern state cannot afford to do without them, and the action of individuals and corporations cannot fully compensate for them; the want of them has told severely on the intelligence and refinement of our middle and lower class. It makes a difference to the civilization of these classes whether it is the Louvre which represents their country to them, or the National Gallery; and whether the State consecrates in the eyes of the people the great lines of intellectual culture by national institutions for them, or leaves

them to take care of themselves. What the State, the collective permanent nation, honours, the passing people honour; what the State neglects, they think of no great consequence.

It is in this point of view that the national institution, on the Continent, of all that interests human culture seems to me especially important. In France, in her superior and still more in her secondary instruction there is undoubtedly too much regulation by the central Government, too much prescribing to teachers the precise course they shall follow, too much requiring authorizations before a man may stir. If the professors were left free to arrange their programmes by concert among themselves, if any one, not ἄτιμος, and with proper guarantees of capacity (for to a rigorous demand for these there ought to be no objection), were free to open a school or to deliver public lectures without any further check whatever, thought and learning in France would in my opinion be great gainers. This change however, would but remove what is an excrescence upon the public establishment of education, a noxious excrescence due to political causes, and to their predominance in France as with us (only with us they have operated in another way by preventing the public establishment of education altogether) over intellectual interests. All the salutary and civilizing effects of the public establishment of education are to be had without this excrescence. When I come to Germany I will show them so existing.

II.—ITALY.

Mediæval schools of Italy.

I said that the early history of secondary and superior instruction might be traced in France as in a kind of representative country, because France was the main centre of that great movement of the 11th and 12th centuries, in which the seats of this instruction —seats where it took the character which it everywhere still keeps more or less, and in England keeps to a remarkable degree—had their origin. These seats were the Universities, and the University of Paris was in early times the most important of them. But Italy has universities which for antiquity and early importance run the University of Paris very hard. Tradition attributes the foundation of the University of Pavia to Charlemagne, and our Lanfranc, William the Conqueror's Archbishop of Canterbury, studied in the school of law there. But in the 12th century the law school of the University of Bologna eclipsed all others in Europe. The two great branches of legal study in the middle ages, the Roman law and the canon law, began in the teaching of Irnerius and Gratian at Bologna in the first half of the 12th century. At the beginning of this century the name of University first replaces that of school; and it is said that the great University degree, that of doctor, was first instituted at Bologna, and that the ceremony for conferring it was devised there. From Bologna the degree and its ceremonial travelled to Paris. A bull of Pope Honorius in 1220, says that the study of *bonæ literæ* had at that time made

the city of Bologna famous throughout the world. Twelve thousand students from all parts of Europe are said to have been congregated there at once. The different nations had their colleges, and of colleges at Bologna there were 14. These were founded and endowed by the liberality of private persons; the university professors, the source of attraction to this multitude of students, were paid by the municipality, who found their reward in the fame, business, and importance brought to their town by the university. The municipalities of the great cities of northern and central Italy were not slow in following the example of Bologna; in the 13th century Padua, Modena, Piacenza, Parma, Ferrara, had each its University. Frederick the Second founded that of Naples in 1224; in the 14th century were added those of Pavia, Perugia, Pisa, and Turin. Colleges of examiners, or, as we should say, *boards*, were created by Papal bull to examine in theology, and by imperial decree to examine in law and medicine.

It was in these studies of law and medicine that the Italian universities were chiefly distinguished. The medical school of Salerno carries back its origin to the most remote antiquity, and boasts the same priority for its teaching of medicine which Bologna boasts for its teaching of law. The statutes of foreign universities regulate their studies *ad instar studii Bononiensis*, just as they so often regulate them by the example of Paris. But Paris had the pre-eminence in theology and philosophy, and as these were the great studies of the mediæval universities, the university which took the lead in them surpassed all others in importance. So complete was the lead of Paris in the study which swallowed up all others—the so-called philosophy of the schoolmen—that the technical style of this philosophy was called by the humanists of the Renaissance, who inveighed against it, "the style of Paris."

The Renaissance and the Italian universities.

To Italy we owe the Renaissance, and in the 14th century she took the intellectual lead which in the 12th century belonged to France. But the movement of the Renaissance did not in Italy any more than in France possess itself of the universities and schools, and make these its grand channels. The Renaissance was a literary movement, and the great men of the Renaissance were the humanists; the grand business of the universities was the scholastic philosophy, and this governed all the rest of their teaching, even their teaching of letters. The humanists were men, like Petrarch, outside of the established school-teaching of their day, and hostile to it; but this teaching went on in spite of them. There were isolated efforts by men of genius to bring education too into the movement of the Renaissance, and to give the guiding of education to humanists and the humanities; such an effort was that of Vittorino di Feltre with his school at Mantua, and very interesting the history of such efforts is. But they did not succeed. The organized official teaching of Italy remained mediæval and barbarous long after her great writers and artists had launched their country, and Europe along with her, on the line of modern ideas and modern civilization.

The last phase of the scholastic philosophy was Averroism—Aristotle interpreted through the *Great Commentary* of Averroes. What this second or third hand Aristotle was—an Aristotle that had passed through Syriac, Arabic, Hebrew, and Latin translation, with blunders in each, and was then studied by the light of his Arabian commentator, and with the uncritical spirit of the middle age, with a view to find in him a philosophy of the universe—is now well known. Averroism ruled in the Italian universities down to the 17th century, long after it had disappeared from the French schools, its earlier stronghold; and when the humanities, which Italy herself had had so large a share in introducing, and the new philosophy of Descartes, had extinguished it everywhere else. The extraordinary number of copies of certain Averroist professors' lectures, still preserved in manuscript in the libraries of northern Italy, shows the popularity of this teaching, and enables us to trace its duration.* Cremonini, who is called the last schoolman, was professor at Padua in 1631. This countryman of Galileo, after the discovery of Jupiter's satellites, judging that this discovery contradicted Aristotle, would never consent to look through a telescope again. One could not have a better incident to end the career of the scholastic philosophy.

The Averroist doctrines, in this later phase in which the Italian universities received them, were at wide variance with Catholic orthodoxy, and the Lateran Council of 1512 condemned them. Still the theologians were, at bottom, not ill-disposed to the routine, the respect for authority, the clinging to established texts, which the Averroist teaching shared with their own, and which both of them had learned in the same uncritical school of the middle age. The Averroist professors, on their part, made connivance easy by drawing the distinction, so often drawn since, between philosophy and religion. According to philosophy, they always said, according to Aristotle and Averroes, this is so and so; if the Church says otherwise, we are obedient sons of the Church, and we submit our opinion to hers. On the other hand, it was not the arid jargon and barren formulas of the Averroist schoolman, it was his free canvassing of problems such us the unity of the intellect and the immortality of the soul, which drew the Italian students, full of the scepticism and intellectual agitation of that time, to their lectures. "Tell us about the soul," was the cry with which, at Padua and Bologna, the crowd of students is said to have received a new professor. By this side Averroism might also win some indulgence from the school of positive and experimental science which was rising beside it, the creation of that scientific intellect of Italy, which is one of her chief glories, and, perhaps, her chief force; and which, through the worst times of the last three centuries, has never failed her.

The Catholic reaction.

Nothing, indeed, could be more surely fatal to scholasticism, in all its forms, than the growth of positive and experimental science,

* See *Averroès et l'Averroïsme*, par M. Renan; p. 324.

and nothing could seem a more certain means to have swept it, in the end, out of the Italian universities. But Averroism and all the philosophical and literary movement, both of the Italian universities and the Italian nation, fell by another cause; it fell by the Catholic reaction which followed the abortive attempts to bring about a reform of religion in Italy. The intellectual development which the England of Elizabeth seemed to promise was in like manner checked by the triumph of Puritanism; but the triumph of Catholicism in Italy was far more complete, was the triumph of a far more unprogressive and anti-intellectual influence, and far more fatal. Boards of reform, as they were called, were instituted for the supervision of studies; religious orders, like the Jesuits, the Barnabites, and the *Padri Scolopi*, took to school-keeping, and many pious foundations for education date from this period; but education was, by the promoters of this movement, not valued for its own sake, as the liberal culture of the human spirit, but was applied as an auxiliary to promote the authority of the old religion, and as a preventive against heresy. Thus the soul was taken out of it, and with education and government well matching each other, the brilliant Italy of the Renaissance settled down into the frivolity and torpor of its 18th century. The number of professors' chairs at Bologna, which in the 17th century had been 166, had in 1737 fallen to 62. The communes which had disputed eagerly the possession of a distinguished professor, and bidden against one another for his services, sunk into apathy. The boards of examiners, distinct from the regular teachers of the students, which in the earlier and flourishing times of the universities had made examinations independent, honest, and searching, fell into disuse. Universities became regarded, not as seats of learning, but as mere instruments for conferring degrees, and their examinations were a farce. At Naples, the noble family of Avellino had the privilege assigned to it of giving, after a pretence of examination, the diploma of doctor in law and medicine, and of exacting the fees for it. It is remarkable, however, that through all this period of apathy and decline, the scientific tradition of Italy was never broken; a continuous chain of great names carries on this tradition uninterrupted from the 16th century to our own; Falloppio, Galileo, Torricelli, Malpighi, Valisnieri, Spallanzani, Galvani, Volta, Scarpa. In letters and philosophy, on the other hand, Italy has, perhaps, from the 17th century to the 19th, only one truly great name to match with this list—the name of Vico. It shows how insufficient are the natural sciences alone to keep up in a people culture and life, that the Italians, at the end of a period with the natural sciences alone thriving in it, and letters and philosophy moribund, found themselves, by their own confession, with "a poverty of general culture, and in an atmosphere unpropitious to knowledge," which they sorrowfully contrast with the condition of other and happier nations.

Long torpor of the Italian schools.

Two efforts after life and improvement break this long period of deadness in the education of Italy. The first is the endeavour of

Efforts at improvement.

Piedmontese administration.

the princes of the House of Savoy to make the organization of public instruction in their own states more efficient. The Royal Constitutions of 1729 and 1772 were the fruit of such an endeavour. By these constitutions the control of secondary instruction was taken away from the religious orders; the *Collegio delle Province*, with 100 free studentships, was established with the aim of preparing, in connexion with the University, teachers qualified to give this instruction. Schools of method were established to prepare teachers for primary schools, and with the title of *Magistrato della Riforma* the germ of a well-composed Council of Public Instruction appeared. The regulations of this Council gave strictness to the lax university examinations, and thus braced the University studies. Inspired by a political interest rather than by a love for culture and science, these reforms of the Turin Government had, probably, for their main design to give the State the control of so powerful an instrument as public education; but in certain circumstances such a design may prove to be patriotic and useful. The Turin Government imported into education the ideas which the Italy of that time so greatly needed, and which have made Piedmont's fortune in Italy; the ideas of public spirit, effective administration, honest work, and rigid discipline. These alone are not enough to form what the Italians well call an *atmosfera intellettuale propizia agli studi*, but they form character, and prepare the indispensable foundations for a people's greatness; and even in that subalpine soil where, as Peyron, the celebrated Piedmontese hellenist, contemptuously said: "The thyme of Attica refuses to strike root," their application produced a system of schools the best worked and managed, on the whole, in Italy.

The French in Italy. Their improvements.

The second effort was due to the French occupation. We in England, impressed with their faults because it was our lot to meet them as enemies, do not in general know the true merits either of the French revolution or of the first Napoleon. Their faults are palpable and undeniable; their merits are equally undeniable, but it needs some knowledge of the continent and some reflection to make them palpable to an Englishman. The great merit of the French revolution, the great service it rendered to Europe, was *to get rid of the Middle Age;* very few Englishmen yet perceive even that. The great merit of the first Napoleon, the great service he rendered to Europe, was *to found a civil organization for modern society.* With all his faults, his reason was so clear and strong that he saw, in its general outline at least, the just and rational type of civil organization which modern society needs, and wherever his armies went, he instituted it.

That the French revolution's merit and service was a real one is shown by all the world, as it improves, getting rid more and more of the middle age. That Napoleon's merit and service was a real one is shown by the bad governments which succeeded him having always got rid, when they could, of his work, and by the progress of improvement, when these governments become intolerable and are themselves got rid of, always bringing it back. Where

governments were not wholly bad and did not get rid of Napoleon's good work, this work turns out to have the future on its side, and to be more likely to assimilate the institutions round it to its pattern than to be itself assimilated by them. The Rhine province of Prussia has the *Code Napoléon* and Westphalia has not; but there is far more likelihood of Westphalia's having one day the *Code Napoléon* than of the Rhine province having the law of Westphalia.

The absurdities and abuses of which the old education of Europe was full, and nowhere so full as in Italy, the French reformed with unsparing vigour. Convents were turned into schools, and in the half barbarous district of Southern Italy Joseph Bonaparte's government planted *licei* in the towns, while it extirpated brigandage in the country. The now existing public schools at Bari and Lecce were then established. Medical study in the kingdom of Naples having declined from the diplomas of the school of Salerno to those of the Princes of Avellino, the French restored it by founding the *Collegio Medico-chirurgico Napolitano*, in which medical students were boarded, lodged, and taught by special professors of their own; to this day, I am told, one of the best institutions in Europe for its purpose. Faculties and universities, of which it is easy to have—and Italy had and has—too many, were suppressed, and the expenditure on them turned to better account for the interests of public instruction; thus at Ferrara the feeble and unneeded university was closed, and a *liceo*, which the city up to that time did not possess, and a school of hydraulics, for which Ferrara by its situation offers special advantages, substituted for it. Other universities, like Pavia, strong already, were strengthened still more; indeed, such a constellation of famous names as is seldom seen was to be found at Pavia under Napoleon's rule; Volta, Spallanzani, Frank, Scarpa, Foscolo, and Monti were all professors here at the same time. The exact sciences, which stir the whole man less than letters and philosophy, are better suited than letters and philosophy to a political system like the first Napoleon's; and his own special turn, too, was for the exact sciences; so in Italy, as in France, these throve and shone far more than letters. Yet for letters, too, and general culture, Napoleon did the very best thing, perhaps, that any government could do for them, by founding the Normal School of Pisa, on the model of, and in connexion with, the Normal School of Paris, of which I have said so much. At the present moment the Pisa school is the sheet anchor of Italian secondary instruction.

Reaction after 1815.

With the fall of the first French Empire all this improvement stopped. The Normal School of Pisa was closed. I have mentioned the French reforms in medical study at Naples. Besides reforming this, the French Government had reorganized the whole University, established new chairs, museums, a botanic garden, &c.; but "the Bourbon restoration," says Signor Matteucci, "struck particularly at the University, reducing the number of

" students as much as possible by creating in the provinces uni-
" versity faculties, which had often only a nominal existence, and
" by confiding all instruction to the Jesuits and to the clergy."
As it was at Pisa and Naples, so it was everywhere. At Turin itself, the early seat of reform of a certain kind, the University was in 1821 closed. The attempts of the better Italian Governments to do something for education were but half-hearted attempts, made without light and faith. In Tuscany the Grand-Ducal Government reopened in 1846 the Normal School of Pisa; but so languid was this effort at revival, and so unfavourable were the circumstances for it, that in 1862 there was not a single pupil left.

The new kingdom of Italy. The *Legge Casati.*

Meanwhile those events happened which consolidated Italy and placed the Piedmontese Government at its head. Count Cavour well knew how necessary an agent in the regeneration of Italy was a good system of public instruction. He knew too that in modern times the State cannot remain a stranger to this instruction. The first Piedmontese Minister of Public Instruction had been appointed in 1847. The first Council of Public Instruction was nominated at the same time. Piedmont was at that time only Piedmont. It began at once to organize and improve instruction within its own borders, and the Piedmontese habits of discipline, regular work, and honest administration, produced, as I have said, excellent results in the Piedmontese schools, though the literary and scientific genius of Italy, and her love for all humane culture, do not come to her from Piedmont. The moment the first annexations had taken place, the Turin Government hastened to provide for the now enlarged requirements of its public instruction by a new law. This law was the education law of the 13th of November, 1859, the *Legge Casati*, as, from the name of the Minister of Public Instruction who introduced it, it is generally called. As fresh portions of Italy came under King Victor Emmanuel's rule, this law was extended to them also,* with some slight modifications. From that time to this, ministries have rapidly succeeded one another in Italy; no Minister of Public Instruction has held his post long, and from each, while he held it, numerous regulations and re-arrangements have proceeded. There is, therefore, a certain want of unity in what has been hitherto done. But the law of 1859 imposed on the Council of Public Instruction the duty of making a report to the Minister at the end of every five years on the state of all parts of public instruction in the Italian Kingdom. The first quinquennial period expired in November, 1864, and in May last year the Council, through their Vice-President, Signor Matteucci, himself at that time an Ex-Minister of Public Instruction, addressed to the Minister, Baron Natoli, a report full of interest on the actual condition of superior, secondary, and primary education in the kingdom of Italy, with recommendations for dealing with them. The

* To Tuscany by the Tuscan Government's law of March 10th, 1860; to the Neapolitan provinces by the law of the Government of the Lieutenancy, February 10th, 1861; to Sicily by the decree of the Prodictatorial Government, October 17th, 1860.

Council had prepared itself for its task by sending inspectors through the kingdom, by addressing questions to the university and school authorities, and by collecting statistics. To ascertain the progress made since 1859 was of course the immediate object of the Council's inquiry; but, in elucidating this, they threw clear light on the condition of studies which the law of 1859 found existing. I begin with secondary instruction, and my notice of superior instruction, except at its point of contact with secondary, will, as before when I was speaking of France, be very brief.

The Italian secondary schools at the present time.

In 1865 there were in the northern provinces of the Italian kingdom 40 *licei*, in the central provinces 19, in the southern provinces 14, in Sardinia 2, in Sicily 7; 82 in all. The *licei* are established in the principal towns; the State has one, at the least, in each province, and there are 59 provinces. Sixty-two of the 82 *licei* are State establishments. The course in a *liceo* is of three years only, and they correspond with the superior division of the French *lycées*. With the grammar division and elementary division correspond the *ginnasi*, or gymnasiums, with a five years' course, answering to the two classes of the French elementary division and the three of the grammar division. Only in the Neapolitan provinces is the *ginnasio* a part of the *liceo;* the united institution there takes the name of *liceo-ginnasiale*. In other provinces they are separate schools under separate management and often in separate premises. A certain number of *ginnasi*, are, like the *licei*, at the States' charge;* one, at least, in each province is so; but in every chief town of a province, or district of a province (*circondario*, the French *arrondissement*) where the State has not a *ginnasio*, the municipality is bound by the law of 1859 to provide and superintend one. Many municipalities prefer to provide the requisite funds and to hand over the task of superintendence to the State; and this is permitted by the law. There were, in 1865, 117 *ginnasi* in the northern provinces, 43 in the central, 17 in the southern, 12 in Sardinia, and 29 in Sicily; 218 in all. Ninety-five of these are State establishments. After the *licei* and the *ginnasi* come the *scuole techniche*. These are a creation of that modern desire for schools not exclusively classical which has founded the *Real-Schulen* in Germany, and is founding the *enseignement secondaire spécial* of France. In Piedmont the first attempt to satisfy this desire was made in 1840, when Latin was struck out of the programme of the primary schools, and arithmetic, geography, and history, introduced into that of the secondary. A step further was taken in 1848, when there was instituted ("by way of experiment," as the law said†) a special course in the public schools for boys whose studies were not to be classical. This special course embraced the usual matters,—the

* Of the *liceo*, however, the material as well as the personal expenses (as they are called) are at the State's charge; that is, the State pays for buildings, repairs, fittings, &c., as well as for teachers; of its *ginnasi* and *scuole tecniche* only the personal expenses, the teachers' salaries, are defrayed by the State.

† *Legge del 4 Ottobre 1848, Sui collegi nazionali*, art. 25.

mother-tongue and modern languages, modern history, mathematics and natural science, drawing, account-keeping, &c.,—which we have seen it embrace elsewhere. A bifurcation was thus established, not, as in France, in the middle of secondary instruction, but at its outset, and immediately after primary instruction; and the technical course, like the gymnasial, was of five years. Subventions were offered by the State to provinces and communes which would establish special courses of this kind, and the law of 1859 allowed the municipalities which were under the obligation of providing a *ginnasio* to provide a *scuola tecnica* instead of it. The same law entirely separated the technical from the classical schools, and divided the technical or special course into two grades: the first of three years in the *scuola tecnica;* the second of two years in the *istituto tecnico.* The *scuola tecnica* remained in connexion with the department of Public Instruction, and its teaching was made gratuitous. The *istituto tecnico* was attached to the department of Agriculture and Commerce, and became a special or trade school, rather than a school of general secondary instruction, classical or non-classical.

Of *scuole tecniche* there were, in 1865, 85 in the northern provinces, 44 in the central, 7 in the southern, 3 in Sardinia, and 18 in Sicily; 157 in all. A certain number of these schools,* too, are State establishments, having been originally founded by the State, or transferred to its care by the municipalities. Every State school takes the prefix of "royal" (*regia*).

The schools which are not State institutions are divided into *pareggiate* and *non-pareggiate. Pareggiate* means assimilated. In the assimilated schools the course is the same as in the State schools; the pupils are classified in the same way, and the programmes which the Minister of Public Instruction, as in France, issues, and which differ little from the French programmes which I have already described, are followed. The non-assimilated schools regulate their course, classify their scholars, and fix their studies, as they please.

The vast majority of the boys frequenting these schools are day-scholars. Italy, however, has a great many foundations for the free board and lodging of a certain number of scholars in connexion with the schools of the place where the foundation exists. An establishment where scholars are boarded and lodged is in Italy called a *convitto.* It may happen that pupils who pay for their board and lodging are received there as well as scholars proper, or bursars, but the *convitto* exists for the sake of the latter. Many of these foundations are in the hands of the religious, many in those of the municipalities; the State has nine of them, and these State foundations are called *convitti nazionali.*

The expenditure of the State on these nine *convitti,* and on the 62 lyceums, 95 gymnasiums, and 45 technical schools, with which it has charged itself, was, in the school-year 1863–64, 2,194,634 fr., in round numbers, 88,000*l.* The rest of the public secondary

* 45 out of the 157.

schools are maintained by local expenditure on the part of the provinces and communes, of which no complete accounts have yet been collected and published.

The population of the public secondary schools of the Italian kingdom* is 24,492.† It is thus divided. The *licei* have 3,362 scholars; the *ginnasi*, 12,862; the *scuole tecniche*, 8,268. To divide it in another way, the classical public schools have 16,224 pupils, the non-classical 8,268. For the body of 24,492 scholars there are 2,342 teachers, of whom 905 are ecclesiastics.

This is extravagant work on the face of it, for we have here a teacher to every seven scholars and a fraction. The more we examine the school statistics the more clearly does the extravagance of the present order of things come out. The best frequented schools by far are those of the northern provinces, the old dominions of the throne of Sardinia; but even in these schools the supply of pupils reaches on an average only 19 and a fraction per class for the *licei*, 15 and a fraction per class for the *ginnasi*, and 24 pupils and a fraction per class for the *scuole tecniche*.‡ But in the new provinces of the Italian kingdom the proportion is very much lower. In central Italy the *licei* have on the average only 9 pupils per class, the *ginnasi* 10, and the *scuole tecniche* only 8. As we go further south the proportion becomes lower still. It is calculated by the Council of Public Instruction that in northern Italy and Sardinia there are at present twice as many *licei* as are wanted, in central Italy four times as many as are wanted, in southern Italy and Sicily more than four times. The pupils are wanting to the schools, they say, not the schools to the pupils; and it is in the classical schools that the deficiency of pupils is greatest and increases, while the non-classical schools are continually getting fuller.

The Council do not recommend the suppression, at present, of any of the existing *licei*, but, to diminish a source of needless expense, they propose to put the literary and mathematical instruction of the *licei* into the two first years of the course there, and the instruction in physical science into the third year, and that in all those *licei* which are unprovided with the proper outfit for giving the latter instruction, the course shall be restricted to two years, and the third year's course suppressed.

A more efficacious retrenchment is proposed in the case of the lower secondary schools. It is proposed to strike Latin and Greek out of the first three years of the gymnasial course, to fill these

* The kingdom of Italy contained, by the census of 1861, 21,747,334 inhabitants.

† These numbers are taken from the recent report of the Superior Council of Public Instruction to the Minister. The statistics, however, collected with so much pains for that most valuable document are not absolutely complete; the returns from some places either could not be procured, or arrived too late to be used. See *Sulle Condizioni della pubblica Istruzione nel Regno d'Italia; Relazione generale presentata al Ministro dal Consiglio Superiore di Torino* (Milan, 1865), p. 245.

‡ As in France, the *class*, in Italy, represents a year of the school course, and the school has as many classes as it has years of course. The *licei* and *Scuole tecniche* have thus a three-year course and three classes; the *ginnasi*, a five-year course and five classes.

three years with the modern and practical studies of the technical school, to make this first three years' course gratuitous, and to amalgamate the technical school with the lower part of the gymnasium. Latin and Greek are not to come till the two last years of the gymnasial course. This seems a very sensible proposal. The separation established by the law of 1859 between the technical school and the gymnasium was costly and unnecessary. It had more inconveniences than the old French bifurcation, because it separated the boys younger. It is in general premature to decide for a boy, the moment his primary instruction is finished, whether his secondary instruction shall be classical or non-classical. In any case, whether it is to be classical or non-classical, much of his instruction—arithmetic, geography, history, and so on—must be the same; and to have two schools and two sets of teachers for the same thing, is to double your expenses needlessly. Communes and municipalities, with funds and population really but for one secondary school, were obliged, by the law of 1859, to make their school either altogether classical or non-classical; they were pulled different ways between an influential minority of their inhabitants who wanted a classical school, and the bulk of their middle class who wanted a non-classical; and they often ended by establishing two schools, a *ginnasio* and a *scuola tecnica*, both of which could not be maintained properly, though one might have been. The practical studies, as they are called, of the earlier years of the *ginnasio*, were besides insufficient, especially if it is considered how few boys, comparatively, pass on from the *ginnasio* to the *liceo;* for how many, therefore, the five gymnasial years of Latin and Greek, and nothing else, are time misused. Nor are even Latin and Greek properly learned in the *ginnasio* during these five years, as the examinations at the end of the course show; they might be better learned in two years, a good substratum of modern instruction having preceded them. So the Council propose, as I have said, "the unification of the first triennium of the *ginnasio* with the "first grade of the *scuola tecnica*." If the united pupils exceed 40 or 50 per class, a second teacher is to be provided. But with the present school population the unification, if adopted, will, in a very great number of cases, enable three teachers to do what six are now employed for, and effect an important saving. The two last years of the *ginnasio* will remain devoted, as before, to classical instruction and to preparation for the *liceo*. The boy who does not want this will go, after his three years of modern instruction, either straight into business, or to one of the *Istituti tecnici*, the special schools under the Minister of Agriculture and Commerce.

The Council foresee that this recommendation may expose them to the charge of discouraging Latin and Greek, and they meet this anticipated accusation by drawing a picture of the study of Latin and Greek, as it is at present in the Italian schools. Everything that I myself observed entirely confirms the faithfulness of the Council's picture; but the testimony of Italians is more weighty in this case than that of any foreigner. "What fruits," the

Council ask, "do we obtain from our classical studies at present? "After a youth has spent seven or eight years in the study of "Latin, five or six in that of Greek, is he in a condition to read "with pleasure and without effort a Latin author, to write correctly a short piece of Latin prose, to make out by himself one of "the easiest Greek authors? The Latin compositions which the "Council have had before them, the entrance examinations at the "University,* in which one or more members of this Council have "since 1860 constantly borne part; the competitive examinations "for the studentships in the *Collegio delle Province;* the accounts "we have received from the inspectors, and for the southern provinces the detailed reports of the Visiting Commission of 1862, "afford convincing proof that Latin is neither studied nor liked by "our youth, and that there is a notable going back in the knowledge of it in the last 25 years. What shall we say of Greek? "The study of Greek in our schools leads to such scanty result, "our young men, the moment they leave school, forget so utterly "all the little Greek they have ever learned, that it is impossible "not to consider as lost the time and labour which pupils and "masters have spent on it."

And elsewhere the Council speak of the inferiority of Italy to other countries in secondary instruction, and above all in the literary and classical part of it,† as a matter too clear for doubt or concealment.‡ This inferiority is indeed patent. It is often said, and with truth, that in English classical schools there is a great disproportion between the amount of time and labour spent in teaching Latin and Greek, and the result obtained; the same might be said everywhere; still, no one who knew the work in the highest forms of the great public schools of England, Germany, or France, would draw such a picture of classical instruction in those three countries as the Italian reporter draws of it in Italy.

The state in which the law of 1859 found it accounts for its present deficiencies. The relative superiority of the schools in the north of Italy I have already mentioned. Elsewhere (I quote again the Italian reporter) "secondary instruction had lost the organization given to it under the French empire, and was reduced to "Latin, a little Italian, and, in the last years of the school course, "elementary mathematics, physical science, and the reading of "certain treatises of philosophy." As the proper means of teaching physical science were in general wanting, this bill of fare may certainly be pronounced scanty. With this instruction the scholars managed, however, nearly always to pass the University examinations; "but" (says the reporter again) "the Government delegates "who inquired into their examinations, and had not only the registers but the candidates' papers before them, could not but come to

* Of Turin, where the candidates come from schools which, compared with those of other parts of Italy are, as I have said, well worked.

† *Sulle Condizioni della pubblica Istruzione nel Regno d'Italia*, p. 258.

‡ *Sulle Condizioni*, &c., p. 236.

" the conclusion that the examinations were nothing but a pure form, " so great was the laxity used in passing one and all of the candi- " dates." The attendance in the secondary schools was irregular to an inconceivable degree; in many of the new provinces from one-third to one-half of the pupils absented themselves daily.

The law of 1859 introduced programmes, mainly after the French model; a staff of inspectors general at head-quarters, and, in each province, a *provveditore* to represent the State, and a Provincial School Council to represent the local authority. It required guarantees of capacity from teachers. It exacted for admission to the *liceo* the production of the *licenza ginnasiale*, a certificate showing that the candidate had passed with success an examination in the studies of the *ginnasio;* for admission to the University, the production of the *licenza liceale*, showing the same thing with respect to the studies of the *liceo*. It introduced greater strictness into the university examinations, providing that they should be given by boards of examiners named by the universities or by the Minister of Public Instruction.

Laxity in working the *Legge Casati*.

But many causes combined to impair the effectual operation of this law. It was extended to other parts of the kingdom as they were annexed. Having been made for one part of the kingdom, it could not be extended to others without some modification; the principle of modification having been once admitted, relaxations and exceptions were conceded to importunity, and by these the sound provisions of the original law were in many cases made a dead letter. The programmes were pitched too high; for instance, geometry and algebra were in the programme of the *ginnasio*, and these were so evidently beyond the pupils' state of preparation, that they had to be struck out and arithmetic by itself substituted for them. For arithmetic the law had provided that there should be separate teachers, but it had omitted to impose any test of fitness on them. Unqualified persons were therefore appointed, and arithmetic was ill taught. The degree of bachelor, obtainable after three years of university study, was made the condition of admission to the higher masterships of secondary schools, and a certificate of capacity, obtainable by examination (*esame d'abilitazione*), was required for the lower; but by admitting *equipollent titles*, as they are called, that is, titles of admission allowed to count instead of the degree or the certificate, a door was opened to great abuse, and the law was continually evaded. The school authorities were out of humour with changes which interrupted the easy life they had hitherto led, and which gave them a great deal of fresh work and trouble. In the *ginnasi*, arithmetic having been assigned to a special master, one master was to be charged with all the other work—Latin, Italian, history, and geography—of his class; it having been found that when there was a master for each subject, the pupil learnt next to nothing from any one of them, as they had no firm hold on him. When, however, one master had the four subjects, it soon appeared that he taught none of these subjects but Latin. In the *licei*, the pupils, accustomed to lax discipline,

without thorough grounding in classical studies, and carried, by what inclination for knowledge they had, anywhere rather than in the direction of these studies, showed themselves entirely averse to the Latin and Greek lessons, and it needed vigorous measures to prevent their absenting themselves from them. The *licenza ginnasiale* is indispensable for a number of Government employments, the *licenza liceale* is indispensable for admission to the University, the degrees of which are required for the exercise of law and medicine; so through the school the pupil must go; but he manifests, it is said, a febrile impatience to get through as fast as possible, he is nearly always pushed into a class above his real attainments, cannot profit by its teaching, and passes out of it by an examination which is illusory. With this pressure on the part of pupils and parents, and the general low standard of studies, the school authorities are apt to be slack and indulgent; two thirds of those presented for the *licenza ginnasiale* and the *licenza liceale* now pass, but it is calculated by the Council that hardly one third of them ought to pass. The same reasons make the provincial school councils also, coming, as they do, within the influence of local feelings, slack and indulgent. The *provveditore* and the one or two central inspectors representing the State, have had no staff through which to exercise an efficient inspection or control; for the law of 1859, while providing that the inspection of the secondary schools should be entrusted to two inspectors-general *and their representatives*, had omitted to say who or what these representatives should be. Nor did the University examinations, as remodelled by the legislation of 1859, suffice to raise the standard of instruction throughout the country. In the first place, the most important articles of that legislation were, as regards many Universities, withdrawn or suspended. The change they introduced was too sweeping, the opposition they provoked too strong. Thus in the great University of Naples, a university with some 5,000 students, there still continues to be no obligatory matriculation, and therefore no obligatory examination of the student at entrance. In the second place, high pitched examinations are the result, not the cause, of a high condition of general culture, and examinations tend, in fact, to adjust themselves to studies. So long, therefore, as the Italian secondary schools are what they are, the standard of University examinations in Italy, even when they are enforced, is irresistibly dragged down below the point at which the reformers of education try to fix it. The prescribed strictness is not maintained; in the University year 1862–63 the rejected candidates for degrees in the Italian Universities were not more than six for every hundred who passed; in similar trials in France, Belgium, Germany, and England, the proportion rejected is far larger, though no one will say that the candidates in these countries present themselves worse prepared than in Italy. The admission examinations show the same over-indulgence, nearly every candidate being admitted in some Italian Universities, while for the corresponding examinations in France—those for the degree of bachelor—the number of

rejections is on an average 20 per cent. at least, and sometimes rises as high as 50 per cent.

The Italian universities.

Paucity of students in arts.

From 1858 to the present time there has been a slight but steady falling off in the attendance at the Universities. From the want of admission registers at Naples it is impossible to determine with accuracy the total number of students in the Italian Universities in a given year; 10,000, however, is not far from the mark. In the French faculties, in 1862, 23,371 students were entered; 14,364 of them in Paris alone. In the 19 universities of Germany, exclusive of Austria, there are about 30,000 students.* It is calculated that France has about one University student for every 1,900 inhabitants, Germany one for every 1,500, Italy one for every 2,200. But the great difference between Italy and these countries is in the character of studies followed by the University students. While a fourth of the German students study letters and philosophy, the proportion of Italian students who study these is utterly insignificant. The prevalence of the study of letters is a good test of a country's general condition of culture and civilization; and that it is so is strikingly confirmed by Turin, the centre not, certainly, of the most gifted part of Italy, but of the best governed, trained, and civilized part, having in its University incomparably more students in letters than any other University town of the kingdom. The greater part of the Universities have next to none. Pavia, out of 1,200 students in the year 1864, had only eight of them in the faculty of letters. The principal of the Normal school at Pisa reports that his pupils are often the sole attendants at the lectures in the faculty of letters at Pisa, and he adds that in several universities, and notably in that of Naples, there are years in which not a single degree in letters, or, as we should say, *arts*, is given. Nor is this because of the greater popularity of the natural sciences. It is not the faculty of natural sciences—a faculty which, like that of letters and philosophy, the student in general follows simply for purposes of education—it is not this faculty that is frequented at the expense of the faculty of letters. The throng of students is in the faculties where *brod-studien*, as the Germans say, are prosecuted—in medicine and laws. This is especially the case at Naples, where I have seen in the lecture-rooms of these faculties a concourse of students said, and I can well believe it, to number not less than 400.

The Italian universities had in 1862-63 714 professors, of whom 542 are regular professors (*ordinarii*). It is the abundance of supplementary professors which shows intellectual life and movement in a university; through means of their lectures a subject gets treated on all its sides, the regular professors are kept up

* So says Signor Matteucci, and I leave his numbers for the sake of the remarks he founds on them; but in 1864 there were only (in round numbers) 20,000 *matriculated* students in all the German universities, including those of Austria. It is possible Signor Matteucci reckons unmatriculated attendants at lectures, and so gets his high number of students, but I have been able to find no statistics corroborating the high number he assigns.

to the mark by a competition which stimulates them, and men fitted to be, when their turn comes, regular professors, are enabled to show themselves. The extra-professors and the *privat-docenten* are thus the life of the German universities. The smaller universities there have nearly as many regular professors as the greater; what distinguishes Berlin or Heidelberg is the multitude of able men, who, as extra-professors or as *privat-docenten*, are swelling the volume of university instruction there, and developing their own powers at the same time. The University of Freyburg in the Duchy of Baden has only seven regular professors less than Heidelberg; one has 34, the other 27; but Heidelberg has 53 extra-professors and *privat-docenten*, while Freyburg has only 14. Berlin, in like manner, has 111 extra-professors and *privat-docenten* to its 55 regular professors. In this way not only is the teaching augmented and stimulated, but the State, which pays the regular professors, is saved expense by having to provide fewer of them, and is enabled to pay them better and to make their chairs, as they should be, valuable prizes. Neither the stimulus nor the economy are to be found in the Italian university system. The university professors are—for Italy, where officials are in general paid miserably, and none more miserably than those of secondary instruction—not ill paid. A law passed in 1862 fixes the salaries of professors in the principal universities at 200*l.* and 240*l.* a year; of those in the less important ones at 120*l.* and 144*l.* But the burden of all these salaries has to be borne by the State. Nor does it get full work out of this host of regular professors. The same laxity and want of discipline which astonish us in the secondary schools prevail generally in the universities. The students are in the habit of departing when they think term (as we should say) has lasted long enough; as vacation time approaches, which is when the students please, and not when the *Regolamento* pleases, the whole body of students with one accord," says the official report, "sometimes leave the schools deserted."* Here again Turin forms an exception to the other Italian universities, and is exempt from their irregularity. Again, in France and Germany there are from 32 to 37 weeks of lectures in the university year, with four lectures a week from all lecturers charged with the principal matters of study; a professor's yearly course, therefore, contains from 90 to 120 lectures. From 60 to 70 lectures, or even less, is all that the Italian professors give a year. Finally, the students are in the habit of migrating from the university where they have studied to take their degree in some other university where the examinations are reported to be easier.

Great number of universities in Italy.

Italy has 15 universities,† which, with the *Istituto Superiore* of Florence, an establishment with a part of the teaching and of the degrees of a university, are all of them State institutions. She has

* *Sulle Condizioni, &c.*, p. 197.

† They are the following: Bologna, Pisa, Pavia, Turin, Naples, Palermo, Modena Parma, Genoa, Catania, Siena, Cagliari, Messina, Sassari, Macerata. To these will now be added the Universities of Venetia.

also four free universities,* as they are called; municipal institutions supported by their own funds, and, when these fall short, by the municipality. Thus, for instance, the free university of Camerino has property of the value of 35,469 francs a year; like several of the other universities, it has not the complete number of faculties, it has only two, law and medicine. The municipality is bound, in return for the privilege of possessing a body which gives instruction and degrees in law and medicine, to make good to the two faculties their expenses, so far as they are not covered by what their property and their fees bring them in.

The 15 universities of the State are a heavy burden to it. The State has taken their property, but their property and their fees together represent an annual sum not approaching that which the State spends upon them. Bologna had property which now lets at 15,000 francs a year, but the State spends 490,000 francs on Bologna. Naples had a charge on the *Gran Libro* of 19,591 francs a year; this is now handed over to the Clinical Institute, and the State spends 670,000 francs a year on the University of Naples. Palermo had nearly 145,000 francs a year, which is now received by the Treasury; but the Treasury pays back to Palermo more than 420,000 francs. The University of Turin is still the nominal possessor of its own property; but this property is administered by the State, and what it brings in is treated as ordinary State revenue, not as revenue to be specially applied to the university, which, however, gets from the State nearly 620,000 francs a year. In short, the 14,000,000 or 15,000,000 of francs which is what the total property of the Italian universities, when they became State establishments, was worth, represent in annual value less than an eighth part of the annual sum which the State now spends on the universities. Italy is spending yearly on her faculty-instruction the prodigious sum of 5,500,000 of francs; France spends 3,500,000; Prussia 3,000,000. But of the 3,500,000 of francs which the French Treasury spends on faculty-instruction, it gets back in fees, which are high and collected with regularity, more than 2,500,000; so that the real cost of this instruction to the State does not exceed 800,000 francs. In Prussia the fees are low, but the State outlay on faculty-instruction is in the first instance 100,000*l.* less than that of Italy; and the State has for low fees this compensation, that what the student thus saves he spends on extra instruction, and at least the culture of the nation is a gainer. In Italy the fees are so low and so irregularly collected that they produce to the State less than 500,000 francs. Nor has the State the consolation of seeing its students, as in Germany, by supplementing the regular instruction, turn its cheapness to the best account.

As the municipal liberality, the vigorous organization, the intellectual stir, of which in the middle age the Italian universities had the benefit, have died out, so has the college system of the

* Urbino, Perugia, Camerino, and Ferrara.

middle age. Only a few years ago there were still left at Bologna one or two foreign colleges for free students; "remains," says Signor Matteucci, "of the so many and famous colleges of the "various nations which individuals and governments had founded "in this celebrated university." They are gone, and the college-system of the mediæval university is no doubt unsuited to meet the general requirements of those who seek university instruction in our own time. The *Collegio delle Province*, which I have already mentioned, a foundation of comparatively modern date, still exists at Turin; and in connexion with the university of this city there are not less, in all, than 170 free maintenances for students. Pavia has still the *Collegio Ghislieri*, with 66; some of the holders of these enjoy them at the University of Pavia, others at the Normal School of Pisa, others at the special schools of Turin and Milan. Pavia has also the *Collegio Borromeo*, with 28 free studentships. The yearly sum which the State now disposes of for bursarships and exhibitions at the universities amounts to no more than 153,063 francs.*

State universities and schools better than any others in Italy.

There seems no doubt that the free universities are the laxest in passing candidates; as Turin, with its traditions of a strict public service, and Naples, with the life and competition created by its 5,000 students, are the strictest. There seems no doubt, too, that the secondary schools of the State are in general better than the private schools; that the laxity, too great in the public schools, is yet greater in the private, which have also remained untouched by what improvement and progress have, since 1859, appeared in the public schools. "The great danger of our private teaching," say the Italian reports, consists in this: "that blind and "ignorant parents suffer themselves to be misled by the usurped "reputation of a master who, knowing nothing, takes upon himself "to teach everything, from *a*, *b*, *c*, to philosophy." The same danger attends unregulated private schools in all countries; only in England we always console ourselves with our favourite maxim that the parents who send their children to these schools are "acting in the spirit of self-respect and independence."† In the same independent spirit, parents and boys like to cut as short as they can the period given to schooling. "We find a febrile impatience" (say the Italian reports again) "to shorten the term "of study; and to gratify this impatience a number of private "schools have sprung up, in which the getting through the work "well is sacrificed to the getting through it quick." These schools profess to do in two years what the public schools do in three; and as examinations have hitherto been very lax in Italy, and as in the assimilated or semi-private schools, which have been allowed to examine all comers, and which for the sake of the fees were glad to attract as many examiners as possible, they have been laxest of all, the half-prepared private school boy presented

* *Sulle Condizioni, &c., p.* 161.

† *See* in the *Times*, of October 30th, 1866, the letter of Mr. Flint, Registrar to the Royal Commission on Popular Education.

himself at an *istituto pareggiato* to pass the examination for the gymnasial licence or the lyceal licence, and generally managed to scramble through. This abuse became so flagrant that the minister has been obliged to take away from the *istituti pareggiati* the right of examining for the licence any pupils but their own.

In Upper Italy rather less than a fifth of the candidates for the gymnasial licence, and rather more than a fourth of the candidates for the lyceal licence, come from private schools. In Central Italy private school teaching, if estimated by the number of candidates it presents for their examinations, would appear next to nothing; its candidates are not six per cent. of the whole number presented. In Southern Italy, where education of all kinds is wanting, the whole number of candidates is, to be sure, insignificant; but of what there are the private schools send a better proportion; they send about a third of the candidates for the gymnasial licence, about a sixth of those for the lyceal.

As regards lay private schools, anything like complete statistics and information is not at present to be had. As regards ecclesiastical private schools, it is different. These are of two kinds, the schools of the religious corporations, and the seminaries or schools under episcopal control. In the report of the Superior Council of Public Instruction, from which I have quoted so much, no account is given of these schools. But at the end of last year the Minister of Public Instruction, Baron Natoli, having first instituted the necessary inquiries, drew up two reports* on them, which have since been printed, and which are full of curious and interesting matter.

Religious congregations and their schools.

All through Italy, in the Catholic reaction which followed the stoppage of the Reformation there, religious congregations were formed which took the management of education. The Jesuits have a world-wide celebrity, but the names at least of other congregations are not wholly unfamiliar to most of us; the Barnabites (authorized in 1533), the *Scolopi*, or *Scuole Pie* (1621), the Theatines (1524), the Redemptorists (1732), the Christian Brothers, of French origin, but extended to Italy (1600). Pious persons left money to build and endow schools in connexion with these societies. There were societies of each sex, with schools for each sex, for primary instruction and for secondary, for boarders and for day scholars. Anti-civil and anti-modern tendencies are generally imputed by the friends of progress to these corporations, and at the end of the last century they had fallen into disfavour. The reforms of the Emperor Joseph II. were hostile to them in his Italian dominions. The French rule, with its resolute maxims of lay and civil organization, was more hostile still; but the governments which were restored in 1815 made alliance with them. Austria persisted for some time in the Josephine traditions, but after 1848 events formed her into

* *Statistica del Regno d'Italia: Istruzione data da Corporazioni religiose;* and *Statistica del Regno d'Italia: Istruzione data nei Seminari,* Florence, 1865.

the policy which led to the Concordat of 1856, and to the religious corporations this policy was, of course, favourable. Piedmont began the decisive change, in this as in other things. The Piedmontese law of the 29th of May, 1855, suppressed a number of religious corporations. Then came 1859 and the annexation of the new provinces. These provinces, the moment they expelled their old governments, adopted the Piedmontese law, carrying it a little further. The Piedmontese law assigned for the benefit of the poorer and underpaid clergy the property of the corporations which were suppressed. The new provinces assigned a certain proportion to lay instruction and to charitable institutions. The Piedmontese law, however, had suffered the teaching corporations to subsist, while it abolished other religious corporations; and this exemption was maintained in the new provinces in order to keep their legislation at one with that of Piedmont. The party of progress regarded this as a mere temporary compromise and demanded a far more radical reform. The government brought before the Italian Parliament a bill for the dissolution of all religious corporations. Baron Natoli says that the majority in the country desired such a measure. But the time was, at all events, not fully ripe for it, and the bill was, as we all remember, withdrawn.

Regarding, however, the respited corporations as certainly doomed, and their dissolution as only adjourned for a little while, the minister has taken the inventory of his victims' effects. It appears that there are 63 institutions in which secondary instruction is given by religious corporations. These institutions have 462 teachers and 5,752 boys. Of these boys 30 per cent. are boarders. Primary instruction, with which I am not now concerned, is given by the religious corporations to a far larger body of pupils, and among them, again, the girls far outnumber the boys.*

The minister speaks unfavourably of the instruction given by the religious. Attentively read, however, his criticisms point rather to disaffection in these teachers than to ignorance and incompetence. He says that their teaching tends to make bad citizens, and to keep up a spirit of resistance to the new order of things in Italy. He relates that when a royal inspector asked a girl in a school of the Ursuline nuns at Benevento who was the king of Italy, the girl, to avoid acknowledging the lawful sovereign, answered, *Il nostro re è Gesù Cristo.* He maintains that letters and sciences get a peculiar and illiberal tinge when taught in the cloister. He adds, going to more indisputable ground, that the management of their property by the religious corporations is in the highest degree wasteful and injudicious, and that in many cases funds once ample have by this management been rendered insufficient for the proper maintenance of the schools. In other

* The numbers are as follows: the total number of pupils of the religious corporations, 97,440; 62,901 girls and 18,712 boys. Of the latter, 12,960 are receiving primary instruction; 5,752 (as I have said) secondary.

cases funds still ample are abused; and he cites the instance of a college for girls at Milan, where with a revenue of 8,000*l.* a year a band of 37 governesses and lay sisters maintain and teach 30 pupils.

The secular clergy and their seminaries.

The minister has been able to deal with the seminaries more effectually than with the schools of the religious corporations. The seminaries were instituted by the Council of Trent to train young men for holy orders without exposing them to the influence of the universities. These schools were placed in every diocese; they were governed by a rector whom the bishop nominated; they were subsidized out of the bishop's revenues, and entirely under his control. At first they confined themselves to their original design of solely training for the priesthood, and even exacted repayment from those who after benefiting by their endowments did not proceed into orders. Soon, however, their character changed. It was according to the notions of those days that education should be under clerical direction; persons desirous to found an endowment for the instruction of the lay youth in their locality founded it in connexion with the seminaries. Municipalities, too poor to establish schools of their own, assigned grants to the seminaries on condition of their undertaking the instruction of those children who required it. The governments of the old time, looking upon the clergy as their natural and useful allies, not only did their best to get lay schools attached to the seminaries, augmenting their property from the State domains, or diverting lay and communal foundations for their benefit, but they also tried to put under the bishops' rule the schools of the religious corporations. The bishops were glad of the additional influence which an extended control over education placed in their hands. So it comes to pass that the kingdom of Italy, which has the prodigious number of 231 dioceses, has 260 seminaries or episcopal schools, one for each diocese and 29 to spare. These schools have 13,174 scholars, of whom 9,726 are boarders. There are 1,208 of their pupils under 12 years of age; the vocation of these, therefore, cannot be supposed to be yet very strongly declared. As many as 1,297 boys wear the lay costume and make no profession of any intention to go into orders; 8,429 wear the clerical habit, but numbers of these wear it for a time only, for the sake of a host of small exhibitions given by the seminaries to youths professing to prepare for orders, and for the sake of exemption from military service. When their object has been gained, when they have enjoyed their exhibition and escaped the conscription, they renounce their intention of going into orders. The recruitment for the clergy is becoming difficult in Italy, and this with 260 seminaries to serve as a field for it.

In fact not more than 52 of these institutions are real theological colleges. The mass of them are very indifferent secondary schools, too numerous to be well off either in good teachers or in pupils. They have on an average but 57 pupils to each institution, and 12 pupils to each class. The inquiries made by the

minister convinced him of the general weakness of seminary instruction. The theological studies themselves are in a very depressed condition; with these, however, the State assumes no right to meddle. It leaves the care of these to the bishops, to whom the Council of Trent gave it. But the legislation of 1859 gives to the government in Italy the right of inspecting all establishments of secondary instruction, of exacting certain guarantees of capacity from those who conduct them, and of satisfying itself that nothing in their teaching or management violates morality or the laws. It was notorious that the seminaries openly preached disaffection. Two of them had become a public scandal from proved immorality. In most of them the teaching, consisting of Latin, a little Italian,—not the Italian of the classics of Italy, but an Italian false in taste and false in style,—very little arithmetic or mathematics, still less geography and history, and no study of the natural sciences at all, was quite unsuited to the wants of the present day. The schools of the religious associations had at least admitted inspection and satisfied the law by providing their teachers with the requisite certificates (*patenti d'idoneità*). But the ordinaries of the Italian dioceses maintained that State inspection of the seminaries was contrary to the laws of the church, which gives to the bishops the sole superintendence of the instruction and education in the seminaries. Employing a line of argument familiar to the clergy everywhere, they asked who but the bishops ought to exercise this superintendence, since they were to answer before God for the learning and virtue of those on whom they at ordination laid their hands. The government replied that of the learning and virtue of those whom they were going to ordain it left them the sole guardians, but that it had to satisfy itself about the learning and virtue of that great majority of their pupils who were destined to lay callings. A very few bishops accepted inspection with a good grace; many submitted reluctantly; some broke up their seminaries sooner than admit it; others shut their school-doors against it. The government persisted, and ordered the closing of all seminaries which would not admit the State-inspector.

Trenchant reforms in the schools of the religious.

Eighty-two have been closed, 40 in the past year alone. Then, by a decree dated the 1st of September, 1865, the government ordered the re-opening of all the seminaries which had been closed. But they were to re-open far other than they had closed. The State sequestrated their whole revenues. One third it gave back to the ordinary for a strictly theological college; the other two-thirds it assigned to the municipality for the purposes of public and lay secondary instruction. The task of seeing the work of partition and transformation carried into effect was committed to a gentleman who has many friends in this country, Signor Fusco. He accomplished his commission during this last spring.

The Italian reformers of public instruction consider, however, that they have thus made only a beginning in what needs to be done with the seminaries. The minister announces a plan for reducing

the 231 dioceses of the Italian kingdom at one blow to 59, a diocese for each province. Each diocese is to have one real theological college, *alto istituto seminaristico*, for training its clergy. This institution is alone to enjoy that exemption from State-inspection which the seminaries claim. Schools for the laity are to be under laymen; or, if ecclesiastics wish to conduct such schools, they must conduct them on the same conditions as laymen, by providing themselves with the legal guarantees of capacity, and by admitting State-inspection.

The executive supported by public opinion.

The English jealousy of the executive, and reverence for vested interests, would probable incline us to designate these proceedings (at least it would if they were not employed against Papists) as tyrannical. I will only observe that in every single instance where a seminary has been closed, the local municipality has declared its satisfaction with the measure; in every single instance where endeavours have been made to get a closed seminary re-opened, the local municipality has petitioned the government not to reopen it. The executive in Italy is in fact at this moment much stronger than even in France. It represents the lay and civil element in society; and the Italians, or that part of them which really determines the national policy, know that to make this element triumph is the necessity of the present moment for them. Thus the right of inspection of private schools, which in France is construed not to extend to their instruction, and therefore, except in the case of some signal offence against health, morality, or the law of the land (the three matters which the inspection of private schools is defined as regarding), remains practically unexercised,* and could not be exercised without exciting discontent and opposition, is in Italy construed, and with acquiescence and applause on the part of the public, to extend to the instruction, and to authorize the same examination as is practised by the State in the public schools. Unless we see what the lessons are, say the government authorities, how are we to satisfy ourselves that they do not contravene morality or the laws? A similar argument might be used in France; but in truth it is public opinion, and the national sense of what the wants of the nation are, that determines, for such a State right as the right of school-inspection, the exact limits of its exercise. Only, if this right itself is not written in the laws, abuses of the gravest kind may prevail in the education of a country, and things may even come to a dead-lock, whatever the wants of the nation may meanwhile be, without the possibility of applying a remedy.

Extensive reforms proposed for the universities and lay schools.

The Superior Council recommends, for the universities and lay schools, reforms hardly less thorough than those which the minister recommends for the seminaries. The Council insists, in the first place, on the necessity of one organic education law for the whole kingdom. *Una legge, universalmente accettata, e non*

* It must be remembered, however, that the preliminary guarantee is taken of requiring titles of his capacity from every head of such schools.

derogata con provvedimenti transitori et particolari. Recognizing the expediency of interesting the provinces and communes in the secondary and primary schools by giving them a share in the supervision and management of them, it yet maintains that with the State, represented by the Minister of Public Instruction, rests the supreme duty of seeing that the whole concern of national education is properly and efficiently worked. It proposes to reduce the 59 *provveditori* to 10 or 14, to make the 59 provinces into 10 or 14 school districts by grouping several provinces together for each district, and to give to each *provveditore* two or more visitors, or, as we should say, inspectors. These *provveditori* are the delegates of the State in the provinces, and, with their inspectors, answer in the main to the rectors and academy inspectors of France. As in France, there is to be at head-quarters a body of inspectors general, who are to make annual tours of inspection and annual reports. Their reports are to be published. It is calculated that this organization, while it will enable the government to have for its 10 or 14 provincial delegates men of real weight and reputation, and while it will provide what is wanting at present, an effective inspection, will cost only half as much as the present system. The delegates who exercise inspection on behalf of the local powers, the Provincial School Council and the communes, are to be appointed by them and unpaid.

The Council further proposes that all teachers in the secondary schools shall be required to hold a diploma from a normal school. The only exceptions are teachers of arithmetic, who are to undergo an *esame d'abilitazione* before appointment. No equipollent titles are in future to be admitted, except works of approved merit published by the candidate on the subjects he is to teach, and recognized as of approved merit by the Superior Council of Public Instruction.

New programmes are to be drawn up by different commissions for the different branches of instruction, and after being adjusted to one another, and revised by a single commission formed by representatives from all the separate commissions, are to replace the present programmes, thrown together piecemeal, from different quarters and different hands, and without unity of aim.

For text-books used in the public schools approval by the Superior Council is to be strictly required. Only one grammar is to be used; for other matters more than one text-book may be used, but no text-book which has not had the Council's sanction.

The leaving examination at the *ginnasio** is to have for a counterpart and check to it an entrance examination at the *liceo* turning on exactly the same matters† and of exactly the same degree of difficulty. In like manner, the sincerity of the leaving examination at the *liceo*‡ is to be tested by an exactly

* *Licenza ginnasiale.*

† These are, on paper, translation from Latin, and composition in Italian; *viva voce*, Latin, Greek, and Italian grammar, elementary mathematics, history, and geography.

‡ *Licenza liceale.*

corresponding entrance examination at the university.* The candidate must get seven-tenths of the allotted number of marks in each matter on which he proposes to follow lectures at the university. An attentive study of German schools and universities is visible in this and other parts of the Italian report.

Finally, to check cram for single examinations, and to check, in general, the scamped and hurried work which is laid to the charge of private schools, the Council proposes that the boy who comes from a private school or a private tutor to try for the *licenza liceale* shall undergo, besides the leaving examination for the licence itself, the two examinations which the public school boy has had to undergo at the end of his first and second school years.

Abroad far more than in England, where university instruction is the privilege of comparatively few, secondary instruction leads to superior or university instruction. For good superior instruction, says Signor Matteucci most truly, the two great requisites are, first, good secondary schools; secondly, first-rate men in the university chairs. It is the professor, and not the charter which really makes the university—*il successo di siffatti istituzioni riposa interamente sulla celebrita degli insegnanti.* Only the presence of such men can create that interest, that glow of intellectual life, which constitutes what the Italians, with their love of fine culture, happily call an *atmosfera intellettuale propizia agli studi.* To have their chairs filled by first-rate professors the Italian universities are at present far too numerous. The Council proposes to retain but three faculties of letters for all Italy. These faculties are at the same time to be normal schools to form professors for secondary instruction; their degrees are to be the schoolmaster's certificate, and the special examination for *agrégation* and the title of *agrégé*, of which I have spoken at length in my account of France, are to be introduced and are to form, in Italy as in France, the schoolmaster's *honours* and his title to the higher posts in his profession. The universities of Turin, Pisa, and Naples are to be the seats of these faculties. Pisa already possesses a normal school, which now in fact comprises, one may say, the whole body of students following the faculty of letters at Pisa. Turin has in its *Collegio delle Province* an institution just suitable to be amalgamated, for normal school purposes, with the faculty of letters at the university. Naples is so great a university that the literary normal school for southern Italy must clearly be placed there; and the new institution may probably awaken some of that zeal for the study of letters which at present is wanting in the Neapolitan university.

Similarly there are to be but three high faculties or superior normal schools for the mathematical and natural sciences. These are to be in connexion with the universities of Naples and Turin and the Museum of Florence. These three schools will alone examine and give degrees in mathematics and natural science, as

* These are, on paper, translation from Greek into Latin, and an Italian essay; *viva voce*, Greek, Latin, and Italian authors, philosophy, mathematics, physics, and natural history.

the three schools or faculties of Turin, Pisa, and Naples will alone examine and give degrees in letters.

The remaining universities will only preserve two faculties, those of law and medicine. The government will maintain eleven of each; it will maintain faculties both of law and medicine at Naples, Turin, Bologna, Pisa, Pavia, Palermo, Genoa, Catania, Parma, and Modena, a faculty of law at Sassari, and one of medicine at Cagliari.

The reorganization of theological study is left for a future occasion. At present the seminaries have possession of this study. It will be desirable, say the authorities, to connect it, in part at least, with the universities, the dogmatic part being still left to the seminaries, the auxiliary parts of a theological training being committed to the three university faculties of letters, and university degrees being required of them. But this connexion of the clergy with the universities, from the point of view of a nation's civil interests, at any rate, so desirable, has not yet been accomplished even in France.

Provinces, communes, and private associations are still to be at liberty to maintain free universities, and the Council recommends that the government should cede to them, on application, the buildings, collections, and scientific apparatus of the faculties which it abandons. These free universities, however, are only to admit students who pass the entrance examination to be fixed by an organic law for the whole kingdom, which examination is henceforth to be required of every university student; and they are not to confer degrees, which will only be conferred by examining commissions in connexion with the faculties maintained by the State.

These examining commissions are to be named by the Minister of Public Instruction, and to consist of university professors and members of the principal literary and scientific bodies of the kingdom. The programmes of examination are to be approved by the Superior Council of Public Instruction.

English university men will be astonished at hearing that an Italian student's average yearly cost for maintaining himself at the university is calculated at 800 fr. (32*l.*). It is proposed that the State should found a certain number of scholarships of this value, and of half this value, to be obtained by competitive examination. These scholarships are to be in connexion with free universities, as well as with those of government. The fees for university lectures are to be raised. These fees have been reduced very low, without any corresponding increase in the number of students frequenting the lectures. The duration of the university courses, the number of lectures in them, the periods at which the preparatory examination and the final degree examination for the *laurea*, or doctorate, shall occur, are all to be fixed by the organic law. All university examinations are to be *per materia*, and not, like ours at Oxford and the old examinations in Italy, in several matters lumped together.

The Council proposes, in order to complete the organization of superior instruction for the kingdom, certain high schools for prac-

tical and professional instruction also. The present *scuole d'applicazione* at Turin, Milan, and Naples are to form three high schools of engineering, civil and military. Six clinical institutes, to receive pupils who have completed their studies in a faculty of medicine, are to be established in connexion with the great hospitals of Bologna, Florence, Milan, Naples, Palermo, and Turin. The seven or eight observatories of the kingdom, following the plan of strengthening by suppression and amalgamation which the establishments of Italy so generally need, are to be reduced to three or four. It is even recommended that in this country of local academies and municipal spirit one representative academy should be formed, to take the lead as embodying the science and culture of Italy. There are at present, in the kingdom of Italy, 54 literary or scientific institutions with the name or nature of an academy.

Need of the reforms proposed.

These are sweeping reforms to propose, but then education in Italy needs to be reconstructed from the very bottom. We must remember from what a state of neglect, laxity, and bad government the start has to be made. Nearly three quarters of the population of Italy, over five years of age, are *analfabeti*,* as the Italians call it—unable to read and write. The old government of Naples opposed the establishment of even infant schools; there were actually but four of them in the city of Naples before the revolution. Primary schools hardly existed; the municipality of Palermo has set on foot 140 of them since 1859. There were no public secondary schools; bad schools kept by the monks and Jesuits, in which some Latin was taught, but hardly anything else,—no Greek, no modern languages or modern history, and no natural history,—were the only substitute. Since 1859 there has been a great movement of school opening and school organizing; but this movement has to work with the instruments it finds ready to its hand, and these instruments have the slack and easy-going habits which so many Italians seem to have contracted from the conditions of their national life during the last two centuries. One or two men of genius in important posts work themselves nearly to death, but to get day after day a fair day's work out of every one of her citizens who has an employment, public or private, to discharge, seems at present, to a stranger, the great want for Italy. Their school system is very much modelled on that of the French; and this makes the slack habits of so many of the Italian schools, those in the south particularly, the more conspicuous, because one is reminded of France, where a similar school organization has all done for it that hard work, discipline, and exactitude can do. The professors in the Italian secondary schools are underpaid; 2,000 fr. (80*l.*) a year is at present their highest salary; but they are also in general underworked, some of them not having more than three hours' work a week, and most of them giving you the impression that what they really require is an iron system which shall get five or

* The exact rate is 746·82 of *analfabeti* for each 1,000 of population. The proportion is greater for the female sex than the male: 812·66 for the former to 680·90 for the latter.

six hours of steady work every day out of them. I find in my notes this entry respecting a great Italian public school which I will not name, "good building, bad smells, unsatisfactory *proviseur*, weak professors, and inaccurate Latin and Greek." The same entry would more or less apply to far too large a number of the public schools in Italy.

The schools under ecclesiastical management were in some respects the best of those I saw in Italy. Nowhere on the continent have I seen such good accommodation, according to our English notions, for boarders, as at the *Collegio Nazareno* in Rome and at the Barnabites' School at Moncalieri. The boys have rooms to themselves, and excellent rooms. Nowhere in Italy did I find the Greek so good (but a lesson was not more than three or four lines of Homer) as at Moncalieri. Nowhere in Italy did I find such good Latin as that which the *Collegio Romano* at Rome, in its *Virgil* lesson and its boys questioning one another in prosody, showed me. One who has been reared in an English public school has a certain prepossession for schools conducted by ecclesiastics, and has, from his own training, a stronger satisfaction at finding Latin and Greek properly learnt than at finding anything else. But there is no doubt that the current which is bearing the Italians away from clerical schools, and carrying them towards public and lay schools, is the main current of modern civilization. Perhaps even in the aversion of her students for the old classical studies, in their strong preference for studies which are scientific, modern, and positive, Italy is again showing that quick instinct of a change in the forms and conditions of the higher culture, that tact for a new phase of intellectual life, which she has so decisively shown before. The most animated and effective lessons, as regards both teachers and pupils, that I saw given in Italy, were lessons to a large class in the *liceo Parini* at Milan, on the sense of hearing and on magnetism.

Intelligence of Italian statesmen.

The Italian schools may, perhaps, flourish without the Latin or Greek of the great German or English or French schools, but without their steadiness and genuine work they cannot. They are themselves beginning to see this, and at the Normal School of Pisa, where, in 1862, at the first competitive examination, out of 31 candidates who presented themselves 20 were admitted, at last year's examination only seven were admitted out of 27, the diminution being due, not to a falling off in the candidates' attainments, but to a rise in the examiners' standard. If the distinguished statesmen who now direct public instruction in Italy can but get this bracing and stringent treatment resolutely applied and strictly followed, their direction will soon show excellent fruits. Intelligent their direction is sure to be; for no statesmen can perceive more clearly than the statesmen of this *terre des sentiments humains*, that a government's duty in education is not to fear and flatter ignorance, prejudice, and obstructiveness, but *comprendere, e insinuare nello spirito pubblico, che una buona organizzazione degli studi, e la grandezza intellettuale di una nazione, sono i più saldi fondamenti della potenza degli stati e della vera e ordinata libertà dei popoli.*

III.—GERMANY.

The schools of France and Italy owed little to the great modern movement of the Renaissance. In both these countries that movement operated, and produced mighty results; but of the official establishments for instruction it did not get hold. In Italy the mediæval routine in those establishments at first opposed a passive resistance to it: presently came the Catholic reaction, and sedulously shut it out from them. In France the Renaissance did not become a power in the State, and the routine of the schools sufficed to exclude the new influence till it took for itself other channels than the schools. But in Germany the Renaissance became a power in the State; allied with the Reformation, where the Reformation triumphed in German countries the Renaissance triumphed with it, and entered with it into the public schools. Melanchthon and Erasmus were not merely enemies and subverters of the dominion of the Church of Rome, they were eminent humanists; and with the great but single exception of Luther, the chief German reformers were all of them distinguished friends of the new classical learning, as well as of Protestantism. The Romish party was in German countries the ignorant party also, the party untouched by the humanities and culture.

The German schools and the Reformation.

Perhaps one reason why in England our schools have not had the life and growth of the schools of Germany and Holland is to be found in the separation, with us, of the power of the Reformation and the power of the Renaissance. With us, too, the Reformation triumphed and got possession of our schools; but our leading reformers were not at the same time, like those of Germany, the nation's leading spirits in intellect and culture. In Germany the best spirits of the nation were then the reformers; in England our best spirits—Shakspeare, Bacon, Spenser—were men of the Renaissance, not men of the Reformation, and our reformers were men of the second order. The Reformation, therefore, getting hold of the schools in England was a very different force, a force far inferior in light, resources, and prospects, to the Reformation getting hold of the schools in Germany.

Decline of the German schools and their recovery.

But in Germany, nevertheless, as Protestant orthodoxy grew petrified like Catholic orthodoxy, and as, in consequence, Protestantism flagged and lost the powerful impulse with which it started, the school flagged also, and in the middle of the last century the classical teaching of Germany, in spite of a few honourable names like Gesner's, Ernesti's, and Heyne's, seems to have lost all the spirit and power of the 16th century humanists, to have been sinking into a mere church appendage, and fast becoming torpid. A theological student, making his livelihood by teaching till he could get appointed to a parish, was the usual schoolmaster. "The schools will never be better," said their great renovator, Friedrich August Wolf, the well-known critic of Homer, "so long as the school-masters are theologians by profession. A theological course in a university, with its smattering of classics, is about as good a preparation for a classical master as a course of feudal law would

" be."* Wolf's coming to Halle in 1783, invited by Von Zedlitz, the minister for public worship under Frederick the Great, a sovereign whose civil projects and labours were not less active and remarkable than his military, marks an era from which the classical schools of Germany, reviving the dormant spark planted in them by the Renaissance, awoke to a new life, which, since the beginning of this century, has drawn the eyes of all students of intellectual progress upon them. Prussia was the scene of Wolf's labours, and the Prussian schools, both from their own excellence and from the preponderating importance of Prussia at the present time, are naturally the first in Germany to attract the observer's attention. Having begun with France, and then proceeded to Italy, which it was desirable to visit before the full heats of summer set in, I could not reach Germany till the beginning of July, when it wanted but a fortnight of the annual school vacation. This fortnight I spent in Berlin, and before the schools closed I visited all the more important of them, and attended their classes as I had attended those of the schools in France and Italy. Then came the holidays, longer than ours because the foreign schools have in their school year only this one break of any importance; at Christmas and Easter they have only a few days' vacation. The holidays not beginning at the same time in North and South Germany, I was enabled, after leaving Berlin, to see some schools at work in the Rhine Province, and later I visited the famous establishment of Schulpforta, and other establishments both in Prussian and in non-Prussian parts of Germany. In general, however, though everywhere I was obligingly received and furnished with all possible information, the holidays, either in prospect, actual, or just ended, interfered so much with my seeing the schools in full operation, that the fortnight I passed at Berlin remained the most valuable part, by far, of my experience in German schools. This being so, and it being evidently convenient to select the school system of some one country of Germany for particular description, and for a representative of that of others where the schools follow, in general, the same course, I will choose that of Prussia for this purpose. As a rule, the secondary schools of Northern and Central Germany are better than those of Southern, and those of Protestant Germany better than those of Catholic. This will hardly be disputed; yet the school system all through Germany is in its main features much the same, and is, in its completeness and carefulness, such as to excite a foreigner's admiration. In Austria this excellent school system is not wanting; what is wanting there is the life, power, and faith in its own operations which animate it in other parts of Germany. Nowhere has it this life and faith more than in Prussia. It has them, indeed, in other and smaller German territories as well; a Prussian will himself readily admit that the schools of

* See a most interesting article on Wolf in the *North British Review* for June 1865. Not only for its account of Wolf, but for its sketch of the movement in the higher education of Germany at a very critical time, this article well deserves studying; and having been obliged to make myself acquainted with many of the matters which its writer touches, I may perhaps be allowed, without appearing guilty of presumption, to add that it seems to me as trustworthy as it is interesting.

Frankfort,* or of the kingdom of Wurtemberg, are as good as his own. But it is in countries of the scale and size of Prussia that a living and powerful school system bears the most noteworthy fruits; and it is in Prussia, therefore, that I now proceed to trace them.

The Prussian schools to be representatives of those of Germany. Higher schools of Prussia. 1. *Gymnasien.*

The schools with which we are concerned, the secondary schools as the French call them, the higher schools (*höhere Schulen*) as the Germans call them, are in Prussia thus classed: Gymnasiums, Progymnasiums, Real Schools, upper Burgher Schools (*Gymnasien, Progymnasien, Realschulen, höhere Bürgerschulen*). Above these are the universities, below them the primary or elementary schools.†

At the head of these secondary schools, and directly leading to the universities, are the *Gymnasien.* The uniform employment of this term *Gymnasium* to designate them, dates from a government instruction of 1812. Before this they were variously called by the names of Gymnasium, Lyceum, Pædagogium, College, Latin School, and others.

A gymnasium has properly six classes, counted upwards from the sixth, the lowest, to the first (*prima*), the highest. But, in fact, in all large schools the classes have an upper part and a lower part, and each part has, if necessary, two parallel groups (*cœtus*). The sixth and fifth classes form the lower division of the school, the fourth and third the middle division, the second and first the upper division. In former times the *Fachsystem*, or system by which the pupil was in different classes for the different branches of his instruction, was prevalent; since 1820 this system has been gradually superseded by the *Classensystem*, which keeps the pupil in the same class for all his work. The course in each of the three lower classes is of one year, in each of the three higher of two years, making nine in all; it being calculated that a boy should enter the gymnasium when he is nine or ten years old, and leave it for the university when he is 18 or 19.

The *Lehrplan*, or plan of work, is fixed for all *Gymnasien* by ministerial authority, as in France and Italy. It is far, however, from being a series of detailed programmes as in those countries. What it does is to fix the matters of instruction, the number of hours to be allotted to them, the gradual development of them from the bottom of the school to the top. Within the limits of the general organization of study thus established, great freedom is left to the teacher, and great variety is to be found in practice.

Some years ago the hours of work were 32 in the week. This was found too much, and since 1856, in the lowest class of a gymnasium there are 28 hours of regular school work in the week, in the five higher classes there are 30 hours. The school hours are in the morning from 7 to about 11 in summer, from 8 to about 12 in winter; in the afternoon they are from 2 to 4 all the year round. As in France, there is but one half-holiday in the week, and it is in the middle of the week.

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* This was written before Frankfort became Prussian.

† The middle school (*Mittelschule*), variously called *Stadtschule, Bürgerschule, Rectoratschule*, is in truth only an elementary school of a higher grade, and in France is called *école élémentaire supérieure*, in Switzerland, *höhere Volkschule, Secundarschule.* A description of a school of this kind will be found in my account of the schools of Canton Zurich.

Latin has 10 hours a week given to it in all five classes below *prima*, and eight in *prima*. Greek begins in *quarta*, and thence-forward has six hours a week in each class, by which the Commissioners will at once see that we are no longer in France or Italy, but in a country whose schools treat the study of Greek as seriously as the best schools among ourselves. The mother tongue (and here we quit the practice of English schools) has two hours a week in all classes below *prima*, and three in *prima*. But in the two lowest classes it is always taught in connexion with Latin and by the same teacher, and time may, if necessary, be taken from Latin to give to it. Arithmetic or mathematics have four hours a week in *secunda* and *prima*, three in *quinta*, *quarta*, and *tertia*, and four again in the lowest class. French begins in *quinta*, and is the only modern language except their own which the boys learn as part of the regular school work; it has three hours a week in *quinta*, and two in all the classes above. Many gymnasiums offer their pupils the opportunity of learning English or Italian, but as an *extra*. Geography and history have two hours a week in *sexta* and *quinta*, and thence forward three hours. The natural sciences get two hours in *prima* and one in *secunda;* in the rest of the school they are the most moveable part of the work, the school authorities having it in their power to take time from them to give to arithmetic, geography, and history, or to add time to them when there is no *Realschule* in the place and the boys in the middle of the gymnasium wish to study the natural sciences in preference to Greek. Drawing is a part of the regular school work in the three lower classes of the school, and has two hours a week. *Sexta* and *quinta* have three hours a week of the writing-master.

Every class has religious instruction, *sexta* and *quinta* for three hours a week, the four higher classes for two. All the boys learn singing and gymnastics, and all who are destined for the theological faculty at the university learn in *secunda* and *prima* Hebrew; but these three matters do not come into the regular school hours.

I have said that in places where there is no *Realschule* boys in the middle division of a gymnasium may substitute other studies for that of Greek. Where there is a *Realschule* accessible, this is not permitted; and in the upper division of a gymnasium it is nowhere permitted. In general, the gymnasium is steadily to regard the *allgemeine wissenschaftliche Bildung* of the pupil, the formation of his mind and of his powers of knowledge, without prematurely taking thought for the practical applicability of what he studies. It is expressly forbidden to give this practical or professional turn to the studies of a pupil in the highest forms of a gymnasium, even when he is destined for the army.

2. *Progymnasien.*

Progymnasiums are merely gymnasiums without their higher classes. Most progymnasiums have the lower and middle divisions of a gymnasium, four classes; some have only the lower division and half of the middle, three classes; some, again, have all the classes except *prima*. The progymnasium follows, so far as it has the same classes, the *Lehrplan* of the gymnasium. In the small towns, where it is not possible to maintain at once a progymnasium and a *Realschule*, the progymnasium has often parallel classes for

classical and for non-classical studies. But in general the tendency within the last five years has been for the progymnasium to develope itself into the full gymnasium, and when I was at Berlin Dr. Wiese, a member of the Council of Education there, to whom I am indebted for much valuable assistance,* pointed out to me on the map a number of places, scattered all about the Prussian dominions, where this process was either just completed or still going on.

3. *Realschulen.* To reform the old methods of teaching the classics, to reduce their preponderance, to make school studies bear more directly upon the wants of practical life, and to aim at imparting what is called "useful knowledge," were projects not unknown to the 17th and 18th century as well as to ours. Comenius, a Moravian by birth, who in 1641 was invited to England in order to remodel the schools here, and in the following century Rousseau in France and Basedow in Germany, promulgated, with various degrees of notoriety and success, various schemes with one or other of these objects. The Philanthropinum of Dessau, an institution established in pursuance of them, was an experiment which made much noise in its day. It was broken up about 1780, but its impulse and the ideas which set this impulse in motion, continued, and bear fruit in the *Realschulen*. The name *Realschule* was first used at Halle; a school with that title was established there by Christoph Semler, in 1738. This *Realschule* did not last long, but it was followed by others in different parts of the country. They took a long time to hit their right line and to succeed; it is said to be only from 1822 that the first really good specimen dates. This one was at Berlin, and though it did not begin to work thoroughly well till 1822, it had been founded in 1747, and had been in existence ever since that time. Its founder's name was Johann Hecker, who was a Berlin parish-clergyman. The Government began to occupy itself with the *Realschulen* in 1832, and as the growth of industry and the spread of the modern spirit gave them more and more importance, a definite plan and course had to be framed for them, as for the *Gymnasien*. This was done in 1859.† *Realschulen* were distinguished as of three kinds; *Realschulen* of the first rank, *Realschulen* of the second rank, and higher Burgher Schools. For *Realschulen* of the first rank the number and system of classes was the same as that for the *Gymnasien;* the full course was of nine years. The *Lehrplan* fixes a rather greater number of hours of school work for them than the *Gymnasien* have; 30 for the lowest class, 31 for the class next above, 32 for each of the four others.

All three kinds of *Realschulen* are for boys destined to callings for which university studies are not required. But Latin is still obligatory in *Realschulen* of the first rank, and in the three lower classes of these schools it has more time allotted to it than any

* Dr. Wiese has written an interesting work on the English public schools, but his book on those of Prussia, *Das höhere Schulwesen in Preussen*, Berlin, 1864 (pp. 740), is a mine of the fullest, most authentic information on the subject of which it treats, and is indispensable for all who have to study this closely.

† By the *Unterrichts-und Prüfungsordnung fur die Realschulen und die höheren Bürgerschulen*, of the 6th of October in that year.

other subject. In the highest class it comes to its minimum of time, three hours; and in this class, and in *secunda*, the time given to mathematics and the natural sciences amounts altogether to 11 hours a week.* As the *Realschule* leads, not to the university, but to business, English becomes obligatory in it as well as French. French, however, has most time allotted to it. Religious instruction has the same number of hours here as in the *Gymnasien*. Drawing, which in the *Gymnasien* ceases after *quarta* to be a part of the regular school work, has in the *Realschule* two hours a week in each of the five classes below *prima*, and three in *prima*.

It is found that after *quarta*, that is, after three years of school, many of the *Realschulen* boys leave; and an attempt is therefore made to render the first three years' course as substantial and as complete in itself as possible.

The *Realschulen* of the second rank have the six classes of those of the first; but they are distinguished from them by not having Latin made obligatory, by being free to make their course a seven years' course instead of a nine, and, in general, by being allowed a considerable latitude in varying their arrangements to meet special local wants. A *general*, not professional, mental training, is still the aim of the *Realschule* of the first rank, in spite of its not preparing for the university. A lower grade of this training, with an admixture of directly practical and professional aims, satisfies the *Realschule* of the second rank.

Where a gymnasium and a *Realschule* are united in a single establishment, under one direction, the classes *sexta* and *quinta* may be common to both, but above *quinta* the classes must be separate.

4. *Höhere Bürgerschulen.*

The term *Bürgerschule* was long used interchangeably with that of *Realschule*. The regulations of 1859 have assigned the name of higher Burgher School to that third class of *Realschulen*, which has not the complete system of six forms that the *Gymnasien* and the other two kinds of *Realschulen* have. The higher Burgher School stands, therefore, to the *Realschule* in the same relation in which the *Progymnasium* stands to the *Gymnasium*. Some Burgher Schools have as many as five classes, only lacking *prima*. The very name of the *Bürgerschulen* indicates that in the predominance of a local and municipal character, and in the smaller share given to classics, they follow the line of the *Realschulen* of the second order. Still Latin has three or four hours a week in all the best of these schools. They are, however, the least classical of all the higher schools; but several of them, in small places where there cannot be two schools, have gymnasial classes parallel with the *real* classes, just as certain *Gymnasien*, in like circumstances, have real classes parallel with their classical classes.

Vorschulen, or preparatory schools.

As the elementary schools pursue a course of teaching which is not specially designed as a preparation for the higher schools, it has become a common practice to establish *Vorschulen*, or preparatory schools, as in France, to be appendages of the several higher schools, to receive little boys without the previous examination in

* But see the appendix to this report for fuller details as to the course of study in the German higher schools of each kind.

reading, writing, arithmetic, grammar and Scripture history, which the higher school imposes, and to pass them on in their tenth year, duly prepared, into the higher school. These *Vorschulen* have in general two classes.

Numbers of teachers and scholars.

These are the higher or secondary schools of Prussia. Before the recent war, the population of Prussia was 18,476,500. The latest complete school returns are those for the year 1863. In 1863, Prussia possessed 255 higher schools, with 3,349 teachers in them, and 66,135 scholars. She had 84 *Vorschulen*, or public preparatory schools, with 188 teachers and 8,027 scholars. Of the 255 higher schools, 172 were classical schools, gymnasiums or progymnasiums, with 45,403 scholars; 83 were non-classical schools, belonging to one or the other of the three orders of *Realschulen*, with 20,732 scholars.

All these schools have a public character, are subject to State inspection, must bring their accounts to be audited by a public functionary, and can have no masters whose qualifications have not been strictly and publicly tried. The Commissioners will recollect that we found in the public schools of France 65,832 scholars in the year 1865. They will recollect also that we found, I will not say in the public schools of England, but in all the schools which by any straining or indulgence can possibly be made to bear that title, 15,850 scholars. In the public higher schools and preparatory schools of Prussia we find 74,162 scholars.

Sources of public character of Prussian public schools. Common law of Prussia.

I will not now press this comparison, but will pass on to show in what way the higher schools of Prussia have a public character. There is no organic school-law in Prussia like the organic school-law of France, though sketches and projects of such a law have more than once been prepared. But at present the public control of the higher schools is exercised through administrative orders and instructions, like the minutes of our Committee of Council on Education. But the administrative authority has in Prussia a very different basis for its operations from that which it has in England, and a much firmer one. It has for its basis these articles of the *Allgemeine Landrecht*, or common law of Prussia, which was drawn up in writing in Frederick the Great's reign, and promulgated in 1794, in the reign of his successor:—

"Schools and universities are State institutions, having for "their object the instruction of youth in useful information and "scientific knowledge.

"Such establishments are to be instituted only with the State's "previous knowledge and consent.

"All public schools and public establishments of education are "under the State's supervision, and must at all times submit themselves to its examinations and inspections.

"Whenever the appointment of teachers is not by virtue of "the foundation or of a special privilege vested in certain "persons or corporations, it belongs to the State.

"Even where the immediate supervision of such schools and "the appointment of their teachers is committed to certain private "persons or corporations, new teachers cannot be appointed, and "important changes in the constitution and teaching of the school

" cannot be adopted, without the previous knowledge or consent " of the provincial school authorities.

" The teachers in the gymnasiums and other higher schools " have the character of State functionaries."

To the same effect the Prussian Deed of Constitution (*Verfassungs-Urkunde*) of 1850 has the following:—

" For the education of the young sufficient provision is to be " made by means of public schools.

" Every one is free to impart instruction, and to found and " conduct establishments for instruction, when he has proved to " the satisfaction of the proper State authorities that he has the " moral, scientific, and technical qualifications requisite.

" All public and private establishments are under the supervi- " sion of authorities named by the State.

With these principles to serve as a basis, administrative control can be exercised without much difficulty. These principles, however, may with real truth be said to form part of the common law of Prussia, for they form part of almost every Prussian citizen's notions of what is right and fitting in school concerns. It would be a mistake to suppose that the State in Prussia shows a grasping and centralizing spirit in dealing with education; on the contrary, it makes the administration of it as local as it possibly can; but it takes care that education shall not be left to the chapter of accidents.

State intervention and regulation. Origin and history of the central Education Department.

Up to the middle of the last century, however, the higher schools were so far left to this chapter of accidents, that the State practised little or no interference with the free action of patrons. But it is important to observe that the State was always, in Prussia, an important school patron itself, and exercised its rights of patronage, while in England these rights slipped from its hands. Royal foundations for schools are in Prussia very numerous, and in all Prussian schools of royal foundation the patronage remains vested in the Crown till this day. Schools like Eton and Westminster, like King Edward's School at Birmingham, like the grammar schools of Sherborne, of Bury St. Edmunds, and so many others, would have been in Prussia " Crown patronage schools," with a public, responsible, disinterested authority nominating their masters. So far, therefore, even without any assertion of the right of the State to control private patrons, the higher schools of Prussia have a security which ours have not. The assertion of such a State right, beyond the mere rights of the Crown as a patron, appears in the reign of Friedrich Wilhelm I., and gains definiteness and purpose from that time forth. The *General-Directorium* created by this sovereign, in 1722, was a ministerial body with a department for spiritualities (*Geistliches Departement*) to which the exercise of the Crown rights of control over churches and schools were entrusted. This department was in a few years attached to that of the Minister of Justice, and as such it was held by an able minister, formed in Frederick the Great's school, Von Zedlitz, who in 1787 separated the church and school affairs of the *Geistliches Departement*, and committed the school affairs to a High Board of Schools (*Ober-Schulcollegium*). In the great movement of reconstruction which between 1806 and 1812 renewed the civil and military

organization of Prussia, the Board of Schools was abolished, and the Education Department was made, in 1808, a section of the Home Office. Wilhelm Von Humboldt was placed at its head.* Finally, in 1817, this Education section became an independent ministerial department, and its chief took the title of Minister for Spiritualities and Education (*Minister der geistlichen und Unterrichtsangelegenheiten*). The first minister was Freiherr von Altenstein. Medicine being now added to the affairs over which this department has supervision, the minister's full style now is *Minister der geistlichen, Unterrichts-und Medicinal-Angelegenheiten.* The present minister is Dr. Von Mühler.

When the Education Department was made a section of the Home Office, Wilhelm von Humboldt had two functionaries with the title of *technische Räthe,* technical counsellors, placed with him. These *technische Räthe* have now grown into eight, and they, with the Minister and the under Secretary of State for the department, constitute the central authority for the affairs of education.

Origin and history of the provincial school authorities.

But in Prussia it is not the central minister who has the most direct and important action on the schools, it is the authorities representing the State in the several parts of the country. It is from Wilhelm von Humboldt's accession to office in 1808 that the establishment of a fruitful relation between these two authorities, the schools and the central power, really dates. Before that time, in accordance with the notions which closely connected the School with the Church, the provincial authorities with an action upon the schools were the consistories. These were, indeed, State authorities, for their members are named by the Crown, or head of the State, the head of the State being in Prussia far more practically than in England the head of the Church also, inasmuch as in Prussia the Crown is actually *summus episcopus*, and the powers of supervision and discipline vested of old in the bishops, and in England, where we have kept our bishops, still vested in them, went in Protestant Germany straight to the Crown. The Crown as *summus episcopus* exercises its rights through consistories, and the members of the consistories are in consequence nominees of the State. The consistories therefore supplied a provincial State authority for dealing with schools. But the employment of them for this purpose had two evident administrative inconveniences, to say nothing of other objections to it. In the first place the consistories were in relation at the centre of Government not with the Education Department but with the High Consistory. In the second place, it is only as a Protestant sovereign that the King of Prussia is head of the Church and represented throughout the country by consistories. As a Catholic sovereign he is not head of the Church, and has in the provinces no consistory or ecclesiastical authority which is also a State authority. But Prussia has nearly 7,000,000 of Catholic subjects. For Catholic schools, therefore, as well as for Protestant, a provincial State authority was required, and this authority the consistory could not supply.

* In June 1810, Wilhelm von Humboldt went as Prussian envoy to Vienna, and the rest of his public life was chiefly passed, as is well known, in the diplomatic service of his country.

The administration of 1808 established in each of the *Regierungen*, or governmental districts, into which Prussia was divided, a deputation for worship and public instruction (*Deputation für Cultus und öffentlichen Unterricht*). These deputations were in immediate connexion with the Education Department at Berlin, they represented, in the supervision of the schools in the provinces, the State authority, and exercised for the most part the Crown patronage. In 1810 were added three Scientific Deputations (*Wissenschaftliche Deputationen*), one at Berlin, one at Königsberg, one at Breslau, to examine teachers for the secondary schools and to advise the Government on all important matters relating to these. The Berlin deputation had for its members the two *technische Räthe* of the Education Department, Süvern and Nicolovius, and besides these, Ancillon, Friedrich August Wolf and Schleiermacher. The Commissioners will observe the sort of persons who in Prussia were chosen for the management, at a critical moment, of the State's relations with education.

Provincial School Boards and District School Boards.

The higher schools of Prussia feel to this day the benefits of that management. Variations took place in the organization of the provincial authority, as the different divisions of the Prussian monarchy were constituted afresh, but its general character remained the same, and has remained so till this day. Prussia is now divided into eight provinces,* and these eight provinces are again divided into twenty-six governmental districts, or *Regierungen*. There is a Provincial School Board (*Provinzial-Schulcollegium*) in the chief town of each of the eight provinces, and a Governmental District Board in that of each of the twenty-six *Regierungen*. In general, the State's relations with the higher class of secondary schools are exercised through the Provincial Board, its relations with the lower class of them, and with the primary schools, through the District Board. In Berlin, the relations with these also are managed by the Provincial Board. A *Provinzial-Schulcollegium* has for its president the High President of the province, for its director the vice-president of that governmental district which happens to have for its centre the provincial capital. The Board has two or three other members, of whom, in general, one is a Catholic and one is a Protestant; and one is always a man practically conversant with school matters. The District Board has in the provincial capitals the same president and director as the Provincial Board; in the other centres of *Regierungen* it has for its president the President of the *Regierung*, and three or four members selected on the same principle as the members of the Provincial Board.

The provincial State authority, therefore, is, in general, for gymnasiums, the larger progymnasiums, and *Realschulen* of the first rank, the Provincial School Board; for the smaller progymnasiums, *Realschulen* of the second rank, the higher Burgher Schools, and the primary schools of all kinds, the Governmental District Board. Both boards are in continual communication with the Education Minister at Berlin, and every two or three years they

* I speak throughout of Prussia as she was before her late war with Austria.

have to draw up for him a general report on the school affairs of their province or district.

Examining Commissions.

The Scientific Deputations are now replaced by seven Examination Commissions (*Wissenschaftliche Prüfungs-commissionen*).* The most important business of these Commissions being to examine teachers for the secondary schools, they have seven members, one for each of the main subjects in which teachers are examined—philology, history, mathematics, pædagogy, theology, and the natural sciences. These Commissions report to the Minister every year.

Local and municipal school authorities.

Besides the central and provincial administration there is a local or municipal administration for schools that are not Crown patronage schools. Matters of teaching and discipline, *interna* as they are called, do not in any public schools, even when their patrons are municipalities or private persons, come within the jurisdiction of the local authority; they are referred to the provincial and district boards. The local authority administers *externa*, that is, it manages the school property, fixes the school fees, gives free admissions to poor scholars, and the like; and it nominates, when the patronage is private or municipal, the teacher; but for his confirmation recourse must be had to the State authority, provincial or central. Thus, if local or municipal patrons chose to appoint a master who had not got his certificate from one of the Examination Commissions, the appointment would be quashed. In most towns the local authority for schools of municipal patronage is the town magistracy, assisted by a *Stadtschulrath;* sometimes the local authority is a *Curatorium* or *Schulcommission.* To take one case as a specimen. The two town gymnasiums at Breslau are under a *Curatorium*, of which the composition is as follows: a member of the magistracy (who must be a lawyer) president; two members chosen by the representative body of the commune, and the rectors of the two gymnasiums. This body draws up the school estimate, of which presently; looks after the administration of the school property, sees that the school premises are kept in order and properly supplied with what they want, represents the town at the leaving examinations, or other public solemnities in which the gymnasiums are concerned, has a consultative voice as to any change in the mode of regulating the free admissions, receives from the rector when he and the majority of the masters are agreed on a boy's expulsion, notice that a boy has been expelled, with the grounds for it; if the Rector and a majority of his *Lehrercollegium* differ as to the propriety of expelling, the *Curatorium* decides. It is not the *Curatorium* that nominates the masters, but the town magistracy, subject to approval by the proper State authority. The teaching and all that relates to it are in each gymnasium under the rector's control, who is responsible on this head to the Provincial Board and not to the *Curatorium.*

In cases where the Crown has had a share in endowing a school, or has made a grant to it, it acquires joint rights of patronage with the local patrons, and for the exercise of these rights it is repre-

* The seats of these seven Commissions are the towns of Berlin, Königsberg, Breslau, Halle, Münster, Bonn, and Greifswald. These towns are also the seats of the Prussian universities.

sented by a commissioner, who is always, as such, a member of the *Curatorium*.

Only a few Prussian schools, such as those of Schulpforta and Rossleben, or the Joachimsthal School at Berlin, have so large an endowment that it can fully support them. But a very large number have endowments of some sort, or else grants from some school charity or other, such as the *Marienstift* at Stettin for schools in Pomerania, the *Sacksche Stiftung* in Silesia for schools in the principalities of Glogau, Wohlau, and Liegnitz, and many other such foundations. The Provincial or District Boards supervise the *externa*, the property concerns, as well as the *interna*, the teaching concerns, of all schools of Crown patronage; but by the Prussian law, wherever there is an endowment there is a public right to see that this endowment is properly employed; so that there is a public control for the management of all endowments of private as well as of Crown patronage. The school appoints a man of business (*Rendant*, *Rechnungsführer*) charged with the financial administration (*Cassenführung*) of the school; the authority in whom the patronage of the school is vested (*Patronatsbehörde*) draws out a school estimate (*Schul-Etat*) every three years, showing in detail the school's income, actual and estimated, for the three years about to commence, and its estimated expenditure. In every governmental district, or *Regierung*, there is a public functionary whose business it is to review these estimates, and who addresses to the *Rendant* his remarks and requirements (*Revisionserinnerungen*, *Revisionsforschungen*), which the *Rendant* has to lay before the *Patronatsbehörde*, whatever this may be, *Curatorium*, *Schulcommmission*, &c., and to which this authority must pay attention. An abusive application of trust funds, or of grants from a charity, is thus checked: all expenses not in the estimate have to be accounted for, and all improper expenses are disallowed. The local patrons can only resist by applying to the administrative authority next above that which has dealt with them (*vorgesetzte Instanz*), and this appeal they will never make when they know they have a bad case.

and charities. Their management.

The State has part in the patronage of more than half of the secondary schools in Prussia; in 72 of them as absolute patron; in 74 of them as part patron. The immense majority of the schools of which it is absolute patron belong to the category of *Gymnasien*, the highest and most expensive class of secondary schools. There were, in 1864,* 145 gymnasien in Prussia; of 65 of these the Crown had the exclusive patronage. At the same date there were 28 *Progymnasien*, 49 *Realschulen* of the first rank, 16 of the second, and 21 higher Burgher Schools. Of only seven of these had the Crown the exclusive patronage; of three progymnasiums, two *Realschulen* of the first rank, one of the second, and one higher Burgher School. Under municipal patronage were 26 gymnasiums, 11 progymnasiums, 35 *Realschulen* of the first rank, 10 of the second, and 13 higher Burgher Schools. The municipa-

Patronage of schools.

* A year later than the year for which there are complete returns, and for which I gave, as the total of Prussian higher schools open in that year, 255. In 1864 there were 259.

lities thus show that leaning towards *real* instruction which might be expected from them; of the 49 *Realschulen* of the first rank they have 35. What is most striking to an Englishman is the small number of public schools under patronage neither royal nor municipal, but under the patronage of some church, or corporation, or private person; there are but 12 of them altogether, five *Gymnasien*, two *Progymnasien*, one *Realschule* of the first order, and four higher Burgher Schools. The question therefore as to the rights and interests of private patrons of public schools does not take, so far as the number of their schools goes, very important dimensions. The total expenditure on the higher schools and their *Vorschulen* was, in 1864, 2,580,684 thalers (in round figures, about 387,100*l.*). Of this sum the scholars' fees contributed 1,193,055 thalers; the State, 526,722 thalers, the municipalities, 401,046 thalers; school property produced 384,224 thalers, and benefactions not under public administration, 75,637 thalers. The State is therefore, after the scholars themselves, the great supporter of the public schools, as well as the principal patron of them.

But the Commissioners will ask, in what sense are the schools with private patrons to be called public schools? They are public schools because they fulfil the requirements, adopt the title and constitution, and follow the *Lehrplan*, fixed by public authority for the five classes of public secondary schools, and by so doing obtain the *status* and privilege of such schools. Are there not a great many important establishments, then, the Commissioners may next ask, which do not care to get this status, but prefer to be independent? I answer: no school in Prussia can be *independent*, in the sense of owing no account to anyone for the teacher it employs, or the way in which it is conducted; for every school there is a *verordnete Aufsichtsgewalt*, an ordained authority of supervision. But private persons are no doubt free to open establishments of their own, give them a constitution of their own, and follow a *Lehrplan* of their own. There are ten large private schools in Berlin for the class of boys who go to secondary schools; these private schools, however, have the public schools in view, and take boys whose parents do not like to send them very young to the great public schools, classical or non-classical; but when these boys are ready for the middle division of the public Gymnasium or *Realschule*, they pass on there. These private schools are merely preparatory schools for the public schools, and accordingly they are organized as progymnasiums and as higher Burgher Schools. They represent no anti-public-school feeling, no rival line in education. Two remarkable institutions which did not prepare for the public schools, which gave a complete course of secondary instruction of their own arranging, and which were private schools, *écoles libres*, in the full sense of the term,—the *Plamannsche Anstalt* and the *Cauersche Anstalt*,—existed at Berlin not long ago, but they exist there no longer. Experiments of the same kind are being tried elsewhere; the *Victoria Institut*, at Falkenberg, is a prominent specimen of them; it is a regular private boarding school, charging 400 thalers (60*l.*) a year, and it professes to give the training either of the gymnasiums or of the

Realschulen, whichever the pupil prefers. The English generally know more of schools of this kind than of the public schools abroad, because this kind of private school has a boarding establishment and the public schools have not, and a foreign parent generally looks out for a school with a boarding establishment. For the most part he is no judge at all of schools on their real merits; he sends his son to a foreign school that he may learn the modern languages, and the boy will learn these at a private school just as much as at a public one. But the Germans themselves undoubtedly prefer their public schools. An attendance in the public secondary schools of 74,000 pupils, in a population of 18,500,000, which is Prussia's population, shows that the Prussians prefer them; and it is the same in other German countries.

Preference for public schools.

I believe that the public schools are preferred, in Prussia, on their merits; the Prussians are satisfied with them, and are proud of them, and with good reason; the schools have been intelligently planned to meet their intelligent wants. But the preponderance of the public schools is undoubtedly secured by the establishment in connexion with them of the "leaving examinations" (*Abiturienten-prüfungen, Maturitätsprüfungen, Entlassungsprüfungen, Abgangs-prüfungen*) on which depends admission to the universities, to special schools (*Fachschulen*) like the *Gewerbe-Institut* or the *Bauakademie*, and to the civil and military service of the State. The learned professions can only be reached through the universities, so the access to these professions depends on the leaving examination. The pupils of private tutors or private schools can present themselves for this examination, but it is held at the public schools, it turns upon the studies of the upper forms of the public schools, and it is conducted in great part by their teachers. A public schoolboy undoubtedly presents himself for it with an advantage; and its object undoubtedly is, not the illusory one of an examination-test as in our public service it is employed, but the sound one of ensuring as far as possible that a youth shall pass a certain number of years under the best school-teaching of his country. This really trains him, which the mere application of an examination-test does not; but an examination-test is wisely used in conjunction with this training, to take care that a youth has really profited by it. No nation that did not honestly feel it had made its public secondary schools the best places of training for its middle and upper classes, could institute the leaving examination I am going to describe; but Prussia has a right to feel that she has made hers this, and therefore she had a right to institute this examination. It forms an all-important part of the secondary instruction of that country, and I hope the Commissioners will give me their attention while I describe it.

The leaving examination (*Abiturienten-examen*). Its history.

Before 1788 admission to the Prussian universities was a very easy affair. You went to the dean of the faculty in which you wished to study; you generally brought with you a letter of recommendation from the school you left; the dean asked you a few questions and ascertained that you knew Latin; then you were matriculated. The *Ober-Schulcollegium*, which was in 1788 the

authority at the head of Prussian public instruction, perceiving that from the insufficiency of the entrance examination the universities were cumbered with unprepared and idle students, determined to try and cure this state of things. In December of that year a royal edict was issued to the public schools and universities directing that the public schools should make their boys undergo an examination before they proceeded to the University, and that the universities should make the boys who came up to them from private schools undergo an examination corresponding to that of the public schoolboys. Every one who underwent the examination was to receive a certificate of his ripeness or unripeness for university studies (*Zeugniss der Reife, Zeugniss der Unreife*). The candidates declared to be unripe might still enter the University if their parents chose, but it was hoped that, guided by this test, their parents would keep them at school till they were properly prepared, or else send them into some other line. No plan of examination was prescribed, but the certificate was to record, under the two heads of *languages* and *sciences*, the candidate's proficiency in each of these matters.

The *Allgemeine Landrecht*, promulgated in 1794, after complaints had been rife that the universities had still a number of unprofitable students, and that young men went there merely to escape military service, made yet stricter regulations. It ordered the examination held at the University for boys coming from private schools to be conducted by a Commission; and it forbade the matriculation of anyone who did not obtain a certificate of his ripeness.

But the omitting to prescribe a definite plan for the examination, and the entrusting them to two different bodies, the schools and the universities, caused the intentions of the Government to be in great measure frustrated. There was no uniform standard of examination; the schools made the standard high, the universities made it low, and numbers of young men, leaving the public schools without undergoing the *Abiturientenexamen* there, waited a little while, and then presented themselves to be examined at the University, where the examination was notoriously much laxer than at the school.

The great epoch of reform for the higher schools of Prussia is Wilhelm von Humboldt's year and a half at the head of the Education Department. The first words of a memorandum of this date on a proposal not to require Greek except of students for orders: *Es ist nicht darum zu thun, dass Schulen und Universitäten in einem trägen und kraftlosen Gewohnheitsgange blieben, sondern darum dass durch sie die Bildung der Nation auf eine immer höhere Stufe gebracht werde** — might be taken as a motto for his whole administration of public instruction. To Wilhelm von Humboldt is owing the most important step towards making the *Abiturientenprüfung* what it now is. He was the origi-

* "The thing is *not*, to let the schools and universities go on in a drowsy and impotent routine; the thing is, to raise the culture of the nation ever higher and higher by their means."

nator of a uniform plan of examination obligatory on all who examined candidates for entrance to the University. Schleiermacher, who, as I have said, was a member of the Education Council, wished to take away the examination from the universities, and to give it entirely to the schools. This was not done, but the course of examination was strictly defined, and a form of certificate, fully indicating its results, was prescribed. The certificate was of three grades; No. 1 declared its possessor to be thoroughly qualified for the University, No. 2 declared him to be partially qualified; No. 3 to be unqualified (*untüchtig*). But this plan of reform, which was brought into operation in 1812, could not produce its due fruits so long as the double examination was maintained. After the peace of 1815 there was a great flow of students to the universities; many of them were very ill-prepared; but the universities, with the natural desire to get as many students as possible, eased the examinations to them as much as they could, and admitted the holders of any certificate at all, even of No. 3, to matriculation. At Bonn, in 1822, out of 139 certificates for that year, 122 were of No. 3, declaring the holder unqualified for the University; 16 were of No. 2, declaring him partially qualified; only one was of No. 1, declaring him thoroughly qualified. The Provincial School Boards reported to the minister that the efforts of the schools were frustrated by the laxity of the University Commissions, which got more and more candidates. The schools in their turn were inclined to make the first grade of certificate a reward of severe competitive examination, which was by no means what those who instituted it intended. The admission to the universities of young men declared to be unqualified, the two kinds of examining bodies with differing views and standards, and the threefold grade of certificate, were found fatal obstacles to the successful working of the reform of 1812.

Present plan of the leaving examination in *Gymnasien*.

All three obstacles have been removed. The regulations at present in force date from 1834 and 1856.* The leaving examination is now held at the *Gymnasien* only. The threefold grade of certificate is abolished, and the candidate is, as in old times, certified to be either *reif* or *unreif*. No one, as a general rule, can without a certificate attend University lectures at all; and no one without a certificate of ripeness can be regularly matriculated in any faculty. The examining body is thus composed: the director of the gymnasium and the professors who teach in *prima;* a representative of the *Schul-Curatorium*, where the gymnasium has a *Curatorium;* the Crown's *Compatronats Commissarius* (joint patronage Commissary) where there is one; and a member or delegate of the Provincial School Board. The representative of the Provincial School Board is always president of the examining commission. The *Abiturient*, or leaving boy, must have been two years in *prima*. The examination work is to be of the same pitch as the regular work of this class, though it must not contain passages that have been actually done in school. But neither, on the other hand, must it be such as to require any *specielle*

* *Reglement vom* 4 *Juni* 1834, completed by *Verfügung vom* 12 *Jan.* 1856.

Vorstudien. It embraces the mother tongue, Latin, Greek, and French; mathematics and physics, geography, history, and divinity. An *Abiturient* who is going to enter the theological faculty at the University is examined in Hebrew. The examination is both by writing and *vivâ voce.* The paper work lasts a week,* and the candidate who fails in it is not tried *vivâ voce.* The examination papers are prepared by the director and teachers, but several sets have to be in readiness, and the president of the examining commission, who represents the Provincial School Board and the State, chooses each paper as it is to be given out. He also, at the *vivâ voce* examination, chooses the passages if he likes, and himself puts any question he may think proper The Provincial School Board have at any time the power to direct that the same examination papers shall be used for all the gymnasiums of the province. Each performance is marked *insufficient, sufficient, good,* or *excellent,* and no other terms, and no qualifications of these, are admitted. A candidate who is fully up to the mark in the mother tongue and in Latin, and considerably above it either in classics or mathematics, is declared *reif,*—passes,—though he may fall below it in other things. If the Commission are not unanimous about passing a candidate, they vote; the youngest member voting first and the president last. If the votes are equal the president has a casting vote. But the president may refuse to pass a candidate though the majority have voted for him; in this case, however, the candidate's papers must go to the highest examining authority, the *Wissenschaftliche Prüfungscommission* in whose district the province is, for their decision upon them. To this same High Commission all the papers of half the gymnasiums of each province are each half year referred for their remarks; their remarks, if they have any to make, are addressed by them to the Provincial School Board, and by the Provincial School Board transmitted to the gymnasiums concerned.

The examination takes place about six weeks before the end of the half. The certificates are given out to the successful candidates at the solemnity † which takes place in the *Aula* of a German public school at the end of a half year, or *Semester.* Each member of the examining commission signs the certificate, which, besides defining the candidate's proficiency in each of the matters of examination, has three additional rubrics for *conduct, diligence,* and *attainments,* which are filled up by the school authorities as he deserves.

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* Specimens of the subjects set for the German and Latin essay at these examinations are the following. For the German essay:—"How did Athens come to be the centre of the intellectual life of Greece?"—"From Goethe's *Götz von Berlichingen* draw out a picture of the social state of Germany at the time in which the action of the play is laid." For the Latin essay:—*P. Clodio, cum, ut Ciceronem in exilium ejiceret, in animum induxisset, quæ res fuerint adjumento?—Hannibal quibus de causis, quod sibi proposuerat, Italiam subigere, non potuit?*

† At this solemnity a dissertation is read by the director or one of the professors; and every European student knows how much valuable matter has appeared in these dissertations. I have before me the dissertations held in the last year or two at several of the schools I visited. The following are specimens of their subjects:—*De Sallustii dicendi genere commentatio.—Criticarum scriptionum specimen.—Der Prediger Salomo.—Die Erziehung für den Staatsdienst bei den Athenern.—Untersuchungen über die Cissoide (mathematische Abhandlung).*

The candidate who is considered *unreif*, and not passed, is recommended, according to his examination and his previous school career, either to stay another half-year at school and then try again, or to give up his intention of going to the University. If he still persists in going there at once he may; but he must carry with him a certificate of his present unfitness (*Zeugniss der Nicht-reife*), a certificate with the same rubrics as the other, and signed in the same way. With this certificate he holds an exceptional, incomplete position at the University; he cannot enter himself in any faculty except that of philosophy, and then he is entered in a special register, and not regularly matriculated. He can, therefore, attend lectures; but his time does not count for a degree, and he can hold no public benefice or exhibition. He may be examined once more, and only once, going to a gymnasium for that purpose; the three or four years' course required in the faculty which he follows only begins to count from the time when he passes.

The Commissioners will recollect that for the learned professions —the church, the law, and medicine—and for the post of teachers in the high schools and universities, it is necessary to have gone regularly through the University course and to have graduated.

Candidates who have not been at a public school, but who wish to enter the University, must apply to the Provincial School Board of their province for leave to attend a certificate examination. They have to bring testimonials, and a *curriculum vitæ* written by themselves in German, and are then directed by the school board to a gymnasium where they may be examined. They have to pay an examination fee of 10 thalers. If they fail, the examining commission of the gymnasium is empowered to fix a time within which they may not try again, and they may only try twice. They may, however, if they fail to pass, go up to the university on the same condition as the public school boys who fail. These *externi*, as they are called, are not examined along with the *Abiturienten* of the gymnasium, though they are examined by the same examining commission; but the boys who come from private instruction are by the Minister's directions to have allowance made for their not being examined by their own teachers, and, so far, to be more leniently treated in the examination than the *Abiturienten*. On the other hand, boys who have been at a gymnasium and who have left it in order to prepare themselves with a private tutor, are not entitled to any special indulgence. Indeed a public school boy, who to evade the rule requiring two years in *prima*, leaves the gymnasium from *secunda*, goes to a private school or private tutor, and offers himself for examination within two years, needs a special permission from the Minister in order to be examined. So well do the Prussian authorities know how insufficient an instrument for their object,—that of promoting the national culture and filling the professions with fit men,—is the bare examination-test; so averse are they to cram; so clearly do they perceive that what forms a youth, and what he should in all ways be induced to acquire, is the orderly development of his faculties under good and trained teaching.

Object proposed by the founders of the leaving examination.

With this view all the instructions for the examination are drawn up. It is to tempt candidates to no special preparation and effort, but to be such as "a scholar of fair ability and proper "diligence, may at the end of his school course come to with a "quiet mind and without a painful preparatory effort tending to "relaxation and torpor as soon as the effort is over." The total cultivation (*Gesammtbildung*) of the candidate is the great matter, and this is why the two years of *prima* are prescribed, "that the instruction in this highest class may not degenerate into "a preparation for the examination, that the pupil may have the "requisite time to come steadily and without overhurrying to the "fulness of the measure of his powers and character, that he may "be securely and thoroughly formed, instead of being bewildered "and oppressed by a mass of information hastily heaped together." All *tumultuarische Vorbereitung* and all stimulation of vanity and emulation is to be discouraged, and the examination, like the school, is to regard *das Wesentliche und Dauernde*—the substantial and enduring.* Accordingly, the composition and the passages for translation are the great matters in German examinations, not those papers of questions by which the examiner is so led to show his want of sense, and the examinee his stores of cram.

That a boy shall have been for a certain number of years under good training is what, in Prussia, the State wants to secure; and it uses the examination-test to help it to secure this. We leave his training to take its chance, and we put the examination-test to a use for which it is quite inadequate, to try and make up for our neglect.

Leaving examination in *Realschulen*.

The same course is followed with the *Realschulen* and with the higher Burgher Schools. For entrance to the different branches of the public service, the leaving certificate of the classical school had up to 1832 been required. For certain of these branches it was determined in 1832 to accept henceforth the certificate of the *Realschule* or the higher Burgher School instead of that of the gymnasium. Different departments made their own stipulations; the Minister of Public Works, for instance, stipulated that the certificate of the candidate for the *Bauakademie* (School of Architecture) should be valid only when the candidate's *Realschule* or higher Burgher School had been one of the first class, or with the full number of six classes, and when he had passed two years in each of the two highest classes. I mention a detail of this kind to show the Commissioners how entirely it is the boy's school and training which the Prussian Government thinks the great matter, and not his examination. Since 1832 the tendency has been to withdraw again from the *Realschule* certificate its validity for the higher posts in the scientific departments of the public service; for these posts, the gymnasial leaving certificate is now again required. But for a very great number of posts in the public service the certificate of the *Realschule* is still valid, and for a still greater number of posts in the pursuits of commerce and industry employers now require it. The Education Department issued in 1859 the rules by which the examination for this certificate is at present governed. They are the same, *mutatis mutandis*, with those for the *Maturitätsprüfung* at

* *Perverse studet qui examinibus studet*, was a favourite saying of Wolf's.

the gymnasium. The examining commission is composed in precisely the same way; the examination and the issue of the certificates follow the same course. The subjects are: divinity, the mother tongue and its literature, the translation of easy passages from Latin authors, but, in general, no Latin writing; French and English, in translation, writing, and speaking; ancient history, and the history of Germany, England, and France, for the last three centuries; geography; physics and chemistry; pure and applied mathematics, and drawing. Excellence in one subject may counterbalance shortcomings in another, but no candidate can pass who absolutely fails in any. *Externi* who want the certificate are admitted to examination on the same terms, and at the same fee, as in the *Gymnasien*. In *Realschulen* of the second rank the examination is easier than in those of the first, but the certificate has not the same value. The *Abgangsprüfung* and *Abgangszeugniss* of a higher Burgher School, again, are still more easily passed and won, but still less valuable. The *Abgangszeugniss* of a higher Burgher School entitles the holder to enter the *prima* of a first-rate *Realschule;* often a very important opening to a clever boy in a small country place, who for one year can afford to go to a school away from home, but could not have afforded to get all his schooling there.

Examinations of passage.

To the passage from the *tertia* and *secunda* of the gymnasium or of the *Realschule*, examinations are also attached, for which certificates, if the boy leaves after passing one of them, are given, declaring his ripeness at that stage. For many subordinate employments in the civil service these certificates are accepted. To be a teacher of drawing in a public school, for instance, a certificate of ripeness for *secunda* of a gymnasium or of a first rank *Realschule* or higher Burgher School is required; this if the candidate has not been at a public school and has to be examined as an *externus*;* if he has been at a public school, the certificate of his having passed the examination out of *secunda* at a second rank *Realschule* is sufficient. One important employment of school certificates is to entitle the holder to shorter military service (*Zulassung zum einjährigen freiwilligen Militairdienst*). Young men who volunteer to serve for one year, arming and clothing themselves, the term of military service to be then at an end, must, to be accepted, produce a certificate of a certain value, either from a gymnasium or a *Realschule*.

It shows how many more gymnasium boys there are who go through the full school course than *Realschule* boys, that whereas from the *Gymnasien* in 1863 there were 1765 *Abiturienten* from *prima*, from the *Realschulen* in the same year there were but 214. Adding to the 1765 *Abiturienten* 40 *Externen* who passed at the same time, we have 1805 boys who got the classical certificate of ripeness in 1863. Of this number 1563 went in that year to the Prussian universities. Of the 214 *Abiturienten* from the *Realschulen*, (to whom are to be added three *Externen*, making 217,) 124 went into the public service, 92 into the pursuits

* For the examination of *externi* for this lower kind of certificate, the fee is 4 thalers.

of commerce or industry; one went to prepare for the gymnasial leaving examination, that he might go into a learned profession. Evidently the mass of those who go into business leave the *Realschule* before *prima*, and the majority of those who stay for *prima* stay with the hope of public employment. But the minor certificates accessible to those who leave *secunda* and *tertia* promote an attendance at school longer than that which boys going into business would without the attraction of these certificates be willing to give, and they promote, too, a wholesome return upon the school work done, and a mastering of it as a whole, which tend, the school work having in the first instance been sound and well given, to make culture take a permanent hold upon the future tradesman or farmer. Accordingly, it is common to meet in Germany with people of the tradesman class who even read (in translations, of course) any important or interesting book that comes out in another country, a book like Macaulay's *History of England*, for instance; and how unlike this state of culture is to that of the English tradesman, the Commissioners themselves know very well.

Examination for schoolmasters. Its history.

To insure that the school-work, which so much is done to encourage, shall indeed be sound and well given, it is not in Prussia thought sufficient to test the schoolboy and the candidate for matriculation; the candidate for the office of teacher is tested too. This test is the famous *Staatsprüfung* for schoolmasters (*Prüfung der Candidaten des höheren Schulamts*), and is the third great educational reform I have enumerated, (the *Lehrplan* and the *Maturitätsprufung* being the other two) which owes its institution to Wilhelm von Humboldt. Before 1810 a certificate of having proved his fitness was not required of a candidate for the post of schoolmaster. Municipal and private school patrons in particular made their nomination with little regard to any test of the kind. There was generally in their school a practice of promoting the teachers by seniority to the higher classes, and this practice had very mischievous results. A project was canvassed for giving to the authorities of public instruction the direct appointment to the more important posts in schools even of municipal or private patronage. This project was abandoned; "But," said Wilhelm von Humboldt, "the only defence we can raise against the misuse of their rights by patrons, is the test of a trial of the intending schoolmaster's qualifications."

This test was established in 1810. An examination and a trial-lesson were appointed for all candidates for the office of teacher. It was made illegal for school-patrons to nominate as teachers any persons who were not *geprüfte Subjecte*. As time went on, the security thus taken was gradually made stronger. The trial-lesson was found to be an inutility, as anyone who has heard trial-lessons in our primary Normal Schools can readily believe, and a trial year in a school (*Probejahr*) was in 1826 substituted for it. In the following year it was ruled that the *pädagogische Prüfung*, which forms part of the examination of candidates for orders, and which had hitherto been accepted in lieu of the new test, was insufficient; and that

persons in orders, as well as others, must go through the special examination for schoolmasters. This regulation gave full development to a policy which had been contained in the reform of 1810, a policy which Wolf had long before done his best to prepare and had declared to be indispensable if the higher schools of Prussia were to be made thoroughly good;—the policy of making the schoolmaster's business a profession by itself and separating it altogether from theology.

Present plan of examination for schoolmasters.

The rules now in force for this examination date in the main from 1831. It is held by the High Examining Commissions (*Königliche Wissenschaftliche Prüfungscommissionen*) of which I have already described the composition, and which are seven in number. The candidate sends in his school-certificate of fitness for university studies, and his certificate of a three years' attendance at university lectures. With these certificates he forwards to the commission a *curriculum vitæ*, such as used to be required from candidates for the Oriel fellowships. The candidate for the gymnasium writes this in Latin; the candidate for the *Realschule* may write it in French. The certificate given takes the form of a *facultas docendi*, or leave to teach; and this is *bedingte* or *unbedingte*—conditional or unconditional. The matters for examinations are grouped under four main heads (*Hauptfächer*): first, Greek, Latin, and the mother tongue; secondly, mathematics and the natural sciences; thirdly, history and geography; fourthly, theology and Hebrew. This last *Hauptfach* concerns especially those who are to give the religious instruction in the public schools; if they have been examined for orders before a theological board and have passed well, an oral examination is all the divinity examination they have to undergo before the Commission. Those who are to give the secular instruction have likewise only an oral examination in divinity, and are not examined in Hebrew; but they must satisfy the Commission as to their acquaintance with Scripture and with the dogmatic and moral tenets of Christianity. Candidates weak in their divinity have this weakness noted in their certificate, and the Provincial School Boards are directed not to place any teacher weak in this point till he has been re-examined and has passed satisfactorily; and the *curriculum vitæ* of every candidate has in the first instance to state what he has done at the University, to keep up and increase his knowledge of divinity (*seine religionswissenschaftlichen Kenntnisse zu erweitern und tiefer zu begründen*). These latter regulations date from within the last 20 years.

The unconditional *facultas docendi* is only given to that candidate who in his *Hauptfach* shows himself fit to teach one of the two highest forms, and sufficiently acquainted with the matters of the other *Hauptfächer* to be useful to his class in them. The candidate who in one *Hauptfach* is strong enough for any class up to *secunda* inclusive, but falls altogether below the mark in other sciences, receives a *bedingte* "facultas docendi," for the middle or the lower forms, according as his capacity and the extent of his performance and of his failure seem to merit.

All candidates are required to be able to translate French with

ease, and they must know its grammar. All must show some acquaintance with philosophy and pædagogic*, candidates for the unconditional *facultas docendi*, a very considerable acquaintance; and all must satisfy the examiners that they have some knowledge of the natural sciences.

The candidate for a *Realschule* or a higher Burgher School need not take Greek, but he must pass in Latin. His *Hauptfächer* are: mathematics, natural sciences, history and geography, the mother tongue, modern languages. His examination in all the non-classical matters is even more stringent than that of candidates for the gymnasium, because of his comparative exemption from classics.

The trials *pro loco* and *pro ascensione* are examinations imposed when the nominee to a place has not yet proved his qualifications for that place. For instance, the holder of a conditional *facultas docendi* cannot be appointed to a class in the highest division without being re-examined, and the holder of an unconditional *facultas docendi* cannot teach another matter than the *Hauptfach* in which he has proved his first-class qualification, without being re-examined.

A special *facultas docendi* is given to the foreign teacher of modern languages; but even he, besides the modern language he is to teach, must know as much Latin, history, geography and philosophy as is required of candidates who are to teach in the middle division of a gymnasium. This provision guards against the employment of subjects so unfit by their training and general attainments to rule a class, as those whom we too often see chosen as teachers of modern languages.

The High Commissioners send yearly to the Provincial School Board of each province a report of these examinations for that province, with the necessary remarks. The candidates for masterships present themselves, with their certificates, to the School Board of the province in which they wish to be employed. In certain exceptional cases candidates may be employed two half years without a certificate; but at the end of that time, if they have not passed the examination, they must be dismissed.

Those who at the University have taken, after examination, the degree of doctor, and have published the Latin dissertation required for that degree, are excused from the written part of the schoolmaster's examination. When this examination was first instituted, both Schleiermacher and Wolf, being then members of the Education section, declared themselves strongly against allowing any university title to exempt candidates for the *höhere Schulamt* from going through the special examination. Probably they were right, for the seriousness of the degree examination, and the value of the degree, is not the same in every German university. They

* The Germans, as is well known, attach much importance to the science of pædagogic. That science is as yet far from being matured, and much nonsense is talked on the subject of it; still, the total unacquaintance with it, and with all which has been written about it, in which the intending schoolmaster is, in England, suffered to remain, has, I am convinced, injurious effects both on our schoolmasters and on our schools.

were over-ruled, however; but little or no inconvenience does in fact arise from the allowance, in this case, of an equipollent title; because if a candidate brings the degree of doctor from a university whose degrees are not respected, and if he inspires any suspicion, the patrons who are to nominate him, or the Provincial Board which is to confirm him, invite him to go through the special examination first; and if he refuses, or if he cannot pass, his appointment is not proceeded with.

The *Probejahr*, or year of probation, must, as a general rule, be passed at a gymnasium or a *Realschule*, not at a progymnasium or a higher Burgher School. In this way the schoolmaster of the lower class of secondary schools is a man who has known the working and standards of the higher. The probationer is commonly unpaid, but if he is used in the place of an assistant master the school which so uses him must pay him. The schools are, however, expressly directed not to treat the probationer as a means of relieving an overtasked staff, but to give him an opportunity of learning, in the best way for himself, the practice of his business, and to let him therefore work with several different classes in the course of his year. At the end of his year he receives a certificate from the school authorities as to the efficiency which he shows.

Normal seminaries for schoolmasters.

The time passed in a Normal seminary counts instead of the *Probejahr;* but these seminaries have not in Prussia, any of them, the importance of the *École Normale* in France. There is not the same need of the institution in Germany as in France, and no German professor is obliged to pass through it. The *École Normale* is of much more use in giving its student the thorough possession of what he knows and the power of independent application of it, than in teaching him to teach; and these more valuable functions of a Normal school are performed in Germany by the *Gymnasien* and the universities, to an extent to which the *lycées* and faculties in France by no means perform them. Hence in France the need and utility of the *École Normale.* The Normal seminaries in Germany are connected with the different universities, and designed, in general, to give the future schoolmaster a more firm and thorough grasp on the matters he studies there; the pædogogical seminaries have not been so important or so fruitful to him as the philological seminaries, where this design has been applied to what has hitherto been the grand matter of his studies, *Alterthumswissenschaft*, the systematic knowledge of classical antiquity. It was as the head of the philological seminary at Halle that Wolf gave that impulse to the formation of a body of learned and lay schoolmasters of which Germany has ever since felt the good effects. This seminary was opened in 1787, and Wolf was its director for nearly twenty years, till the University of Halle was closed by Napoleon after the battle of Jena, and Wolf went to Berlin to be a member of the department of education there. During the latter part of Wolf's time at Halle, he was assisted in the seminary by Immanuel Bekker. There were 12 seminarists, with a small exhibition of 40 thalers (6*l.*) a year each: the exhibition was tenable for two years. No one was admitted to an

exhibition who had not already completed his first year's course in the University, but students from any of the faculties might attend the seminary lectures. They attended in great numbers, and for the exhibitions themselves there were at the first examination 60 candidates. The seminary lessons were interpretation lessons and disputation lessons, the former being, as the name implies, the interpretation of a given author; the latter being the discussion, between two or more of the seminarists, either of a thesis set long beforehand and treated by them in written exercises, or of a thesis set by Wolf at the moment and then and there treated orally, in Latin, by his pupils. Wolf's great rule in all these lessons was that rule which all masters in the art of teaching have followed, to take as little part as possible in the lesson himself; merely to start it, guide it, and sum it up, and to let quite the main part in it be borne by the learners. The more advanced seminarists had some practice in the Latin school of the Orphan House at Halle. The later statutes of this philological seminary have set forth in express words, as the object of the institution, the design which Wolf always had in his mind in directing it; the design to form effective classical masters for the higher schools. Every Prussian university has a philological seminary, or group of exhibitioners much like that which I have described at Halle, not more than 12 in number, with a two years' course following one year's academical study, and *Alterthumswissenchaft* being the object pursued. There are generally two professors specially attached to the seminary, one for Greek, the other for Latin. Besides the ordinary members or seminarists, a good number of extraordinary members, and a yet much larger number of *Auscultanten*, attend the lessons. The staff of the philological seminary at Berlin has this constellation of names, from 1812, when this seminary was founded, to the present time:—Boeckh, Buttmann, Bernhardy, Lachmann, Haupt. The philological seminary of the University of Bonn was founded in 1819, and has had on its staff Professors Näke, Welcker, Ritschl, Otto Jahn. The mouth of the student of *Alterthumswissenschaft* in other countries may indeed water, when he reads two such lists as these.

At the University of Bonn there is also a *Naturwissenschaftliches Seminar*, founded in 1825, on the express ground that qualified teachers of the natural sciences in the secondary schools were so much wanting. Bonn has, too, a *historisches Seminar* founded in 1861 for the promotion of historical studies, and also to provide good history-teachers for the secondary schools. Dr. von Sybel, the well known historian, is at present one of its professors. The Universities of Breslau, Greifswald, Königsberg, have likewise historical seminaries, serving either by statute or in practice the same end, of preparing specially qualified teachers of history for the public schools. Berlin, Königsberg, and Halle have also seminaries either for mathematics, or for mathematics and the natural sciences together; these, too, serve, in their line of study, the same end as the philological and historical seminaries serve in theirs. Berlin has also travelling fellowships of a year's duration, to enable Germans, who are to teach French in the public schools, to study

the French language and literature in France itself. Two exhibitions of 45*l.* a year each are attached to the Royal French School in Berlin, with the like object of enabling the future teacher of French to learn French practically and thoroughly. These are Crown foundations; the Crown, associations, and private individuals, are all founders of seminaries. The estimate of none of those which I have named exceeds 1,000 thalers (150*l.*) a year. It is astonishing how much is done in Prussia with small supplies of money.

Probation and practising lessons of schoolmasters.

Special pædagogic seminaries (*pädagogische Seminarien*) exist at Berlin, Königsberg, Breslau, Stettin, and Halle. Of these the assigned business with their seminarist is "to introduce him to the practical requirements of the profession of schoolmaster;" but this introduction is still to be carefully accompanied by a continuance of his general intellectual culture. In general the seminarist here must have passed the examination *pro facultate docendi*, and instead of the *Probejahr* in a school he spends two or three years in the pædagogic seminary. Each seminarist has a certain number of hours' practice (six hours a week at Berlin) in a secondary school; he is present at the conferences, or teachers' meetings, of the school to which he is attached, and he lives with one of its older masters. The Berlin *pädagogische Seminar* was founded in 1787, at first with a single gymnasium (the *Friedrich-Werdersche*) assigned as its practising school; since 1812 all the gymnasiums of Berlin have served in common for this purpose. There are now 10 regular exhibitioners, but the exhibitions here are good, and the estimate for the seminary is much larger than that for any other seminary I have named; it is 2,390 thalers a year. Dr. Boeckh is the director of this seminary as well as of the philological one, and this joint direction well illustrates the close relation at present, in Germany as elsewhere, of the schoolmaster with philology. At Stettin the seminary has only four regular exhibitioners; they have good exhibitions, lasting for two or three years. This seminary is for the benefit in the first instance of the province of Pomerania, and the seminarists have to engage themselves to take, when their exhibition expires, any mastership the Provincial School Board offers them, and to keep it three years.

It is evident from what I have said that these exhibitions do not exist in sufficient number to provide seminary training for anything like the whole of that large body of teachers which the secondary schools of Prussia employ. It is found too that the directors and masters of great schools in large towns, who have a great deal to do and constant claims upon their attention, do not like being saddled with the care of seminarists either at their homes or in their classes. The same difficulties tell against their giving to probationers in their trial year due supervision. But it is the living for a time with an experienced teacher and the making the first start in teaching under his eye, that is found to be so especially valuable for promising novices. It is proposed therefore, instead of founding fresh pædagogic seminaries, to make arrangements for selecting a certain number of good schoolmasters, who will take charge, for payment, of a batch of novices

(not more than three) for a two years' probationary course before launching them independently; and a *stipendium*, or exhibition, such as is given in the seminaries, is to be bestowed on those probationers whose circumstances require it. It is hoped in this way to provide a preliminary training of two years for all the most deserving subjects who go into the profession.

Appointment of Schoolmasters, and jurisdiction over them.

At the end of his term of probation the probationer gets his appointment. I have said before that for all appointments to masterships in the secondary schools the intervention of the State authority is necessary. In schools of Crown patronage the appointment is called *Bestallung;* in schools not of Crown patronage it is called *Vocation;* the State can give *installation*, absolute occupation; other patrons can only nominate, and their nominee, if an improper person, is rejected, with reasons assigned, by the State authorities. The Crown, exercising its patronage through the Education Minister, appoints in all Crown patronage gymnasiums and *Realschulen* the director. The Provincial Boards, in the minister's name and by commission from him, appoint the upper masters (*Oberlehrer*) in these schools, and the rector in all Crown patronage progymnasiums and higher Burgher Schools. The other masters in Crown patronage schools the Provincial Board appoints by its own authority. The nomination of a director in schools of municipal or private patronage requires the Crown's assent and the minister's confirmation. The nomination of an *Oberlehrer* in such schools requires the minister's assent and the Provincial Board's confirmation. The nomination of other masters in such schools the Provincial Board is empowered to confirm on its own authority. All directors and masters, whether appointed by the State or only confirmed by it, take an *Amtseid*, or oath of office, by which they swear obedience to the Crown. In schools of Crown patronage, when the minister directs, on special grounds, the appointment, promotion or transference of a master, the Provincial Board must comply.

The minister, however has in Prussia a far less immediate and absolute action upon the secondary schools than the minister has in France. In France the minister can dismiss any functionary of secondary instruction; in Prussia he can reprimand him and stop his salary for a month, but he cannot of his own authority dismiss him. Directors and upper masters are under the jurisdiction of the Court of Discipline for the Civil Service (*Disciplinarhof*) at Berlin; this court is a judicial body, four of its members belonging to the Supreme Court of Berlin; and any complaint requiring the dismissal of a director or upper master must be tried before it. From the sentence of this court there is an appeal to the minister; but he is bound to appoint, for hearing the appeal, two referees, one of whom must be a member of the Department of Justice; and their decision is final. Complaints of like gravity against other masters (*ordentliche Lehrer*) are tried by the Provincial Board, which like the Court of Discipline hears counsel, and examines witnesses on oath; from the sentence of the Board there is also an appeal to the minister, who appoints in this case one referee only, but the referee, before deciding the appeal, has to take the opinion of the

Court of Discipline. Everywhere in Prussia and in all German countries we shall find a disposition to take security against that immediate and arbitrary action of the executive which we remark in France; and though the Germans give effect in a very different way from ours to this innate disposition of the Teutonic race, yet they give such effect to it as to establish a notable difference—the more manifest the more one examines the institutions of the two countries—between the habit and course of administration in Germany and in France.

Intervention of the Education Minister.

I cannot but think an Education Minister a necessity for modern States, yet I know that in the employment of such an agency there are inconveniences, and I do not wish to hide any of them from the Commissioners. I have said that in France political considerations are in my opinion too much suffered to influence the whole working of the system of public education. In Prussia the minister is armed with powers, and issues instructions showing how he interprets those powers, which in England would excite very great jealousy. He tells the provincial authorities that no reproach must attach to the private and public life, any more than to the knowledge or ability, of a candidate for school employment; he tells them that they are to take into consideration the whole previous career, extra-professional as well as professional (*das gesammte bisherige amtliche und ausseramtliche Verhalten*), of such a candidate; and that schoolmasters should be men who will train up their scholars in notions of obedience towards the sovereign and the State.

I know the use likely to be made, in England, of the admission that a Prussian Education Minister uses language of this kind; and I will be candid enough to make bad worse by saying that the present minister, Dr. von Mühler, is what we should call in England a strong Tory and a strong Evangelical. It is not at all likely that in England, with the forces watching and controlling him here, a minister would use language such as I have quoted; and even if it were, I am not at all sure that to have a minister using such language, though it is language which I cordially dislike, is in itself so much more lamentable and baneful a thing than that anarchy and ignorance in education matters, under which we contentedly suffer. However what I wish now to say is, that, in spite of this language, the political influence, which has such real effect upon the public education of France, has no effect, or next to none, upon that of Prussia. I do not believe that it has more on that of Prussia than it has on that of this country. I took great pains to inform myself on this head. The last year or two have been a time of great political pressure in Prussia; I arrived there when this pressure was at its height; I conversed mainly with persons opposed, some of them bitterly opposed, to the Government. They all told me that the State administration of the schools and universities was in practice fair and right; that public opinion would not suffer it to be governed by political regards, or by any but literary and scientific regards; and that public opinion would always, in this particular, find strong sympathies among the ministers themselves. I heard of one director to whom Dr. von Mühler

had refused confirmation because his politics, which had been very strongly declared, were unacceptable. This director I had the pleasure of seeing; he told me himself, what I heard also from others, that his case was an isolated one; and that it had caused such strong dissatisfaction, not only among the public, but to the schools authorities who represent the State in the provinces and consider themselves responsible for the march and efficiency of secondary instruction, that the minister had found himself obliged to appoint him, within a very few months, to a Crown patronage school of much greater importance than the municipal school for which he had refused him confirmation. The director added, and this too was confirmed by others, that such an intrusion of political feeling as had prevented his confirmation, was in the case of a *Lehrer* or teacher,—either an upper teacher or an ordinary teacher,—absolutely unknown.

The truth is that when a nation has got the belief in culture which the Prussian nation has got, and when its schools are worthy of this belief, it will not suffer them to be sacrificed to any other interest; and however greatly political considerations may be paramount in other departments of administration, in this they are not. In France neither the national belief in culture nor the schools themselves are sufficiently developed to awaken this enthusiasm; and politics are too strong for the schools, and give them their own bias.

Religious instruction. Denominational character of the Prussian schools.

I have spoken several times of the religious instruction as forming part of school-work and of examinations. The two legally established forms of religion in Prussia are the Protestant (*evangelisch*) and the Catholic. All public schools must be either Protestant, Catholic, or mixed (*Simultananstalten*). But the constitution of a mixed school has not been authoritatively defined, and though the practice has grown up, especially in *Realschulen*, of appointing teachers of the two confessions indifferently, yet these *Simultananstalten* retain the fundamental character of Christian schools, and indeed usually follow the rule either that the director and the majority of the masters shall be Catholic or that they shall be Protestant. In general the deed of foundation or established custom determines to what confession a school shall belong. The religious instruction and the services follow the confession of the school. The ecclesiastical authorities,—the consistories for Protestant schools, the bishops for Catholic schools,—must concur with the school authorities in the appointment of those who give the religious instruction in the schools. The consistories and the bishops have likewise the right of inspecting, by themselves or by their delegates, this instruction, and of addressing to the Provincial Boards any remarks they may have to make on it. The *ordinarius*, or class-master who has general charge of the class, as distinguished from the teachers who give the different parts of the instruction in it, is generally, if possible, the religious instructor. In Protestant schools the religious instructor is usually a layman; in Catholic, an ecclesiastic. The public schools are open to scholars of all creeds; in general, one of the two confessions, evangelical or Catholic, greatly preponderates, and the Catholics, in especial,

prefer schools of their own confession. But the State holds the balance quite fairly between them; where the scholars of that confession which is not the established confession of the school are in considerable numbers, a special religious instructor is paid out of the school funds to come and give them this religious instruction at the school. Thus in the gymnasium at Bonn, which is Catholic, I heard a lesson on the Epistle to the Galatians (in the Greek) given to the Protestant boys of one of the higher forms by a young Protestant minister of the town, engaged by the gymnasium for that purpose. When the scholars whose confession is in the minority are very few in numbers, their parents have to provide by private arrangements of their own for their children's religious instruction.

Prussia has 11,289,655 Protestants, 6,901,023 Catholics. She has nearly 300,000 inhabitants who are classed neither as *evangelisch* nor as Catholic, and these are principally Jews. In her public higher schools, out of 66,135 boys, 46,396 are Protestant (*evangelisch*), 14,919 are Catholic. The rest, 4,820, are Jews.

Wide acceptation of the denomination *evangelisch*.

The wide acceptation which the denomination *evangelical* takes in the official language of Prussia prevents a host of difficulties which occur with us in England. Under the term *evangelisch* are included Lutherans, Calvinists, and the United Church formed on the basis of what is common to Lutherans and Calvinists; Baptists also, Independents, Wesleyans (for there are Wesleyans in Prussia) are included by it, and, in short, all Protestants who are Christians, in the common acceptation of that word. The State, however, in Prussia, not only declares itself Christian (*der Preussische Staat ist ein christlicher*, says the *Unterrichtsverfassung* of 1816) but it expressly disclaims the neutral, colourless, formless Christianity of the Dutch schools and of our British schools (*der Religionsunterricht darf durchaus nicht in einen allgemeinen Religionsunterricht hinübergespielt werden*). So the Protestant schools as well as the Catholic employ a dogmatic religious teaching. In all schools of the evangelical confession Luther's Catechism is used, and all Protestant boys of whatever denomination learn it. Not the slightest objection is made by their parents to this. It is true that Luther's Catechism is perhaps the very happiest part of Lutheranism, and therefore recommends itself for this common adoption, while our Catechism can hardly be said to be the happiest part of Anglicanism.

Exclusion from school posts of certain dissenters and of Jews.

The various denominations of Protestant Christians are thus harmoniously united in a common religious teaching. But the State, keeping in view the *christlichen Grundcharakter* of itself and its public schools, refuses to employ any masters who are not either Catholics, or, in the wide sense assigned to the term *evangelisch*, Protestants. Dissenters who are not Christians, and specially the *Lichtfreunde*, as they call themselves (they would with us generally go by the name of Unitarians or Socinians) are thus excluded from the office of public teacher, and so are Jews. In a country where the Jews are so many and so able, this exclusion makes itself felt. A Jew may hold a medical or mathematical professorship at the

Prussian universities, but he may not hold a professorship of history or philosophy. France is in all these matters a model of reason and justice, and as much ahead of Germany as she is of England. The religious instruction in her schools is given by ministers of religion, and the State asks no other instructor any questions about his religious persuasion.

Restrictions such as that which I have just described are said to be contrary to the provisions of the Prussian Constitution of 1850. The Prussian Parliament has begun to occupy itself with them, and it is probable they will not long be maintained.

Rank and title of schoolmasters.

A master on his appointment takes the title of *ordentliche Lehrer*, ordinary master (the title of under-master is not used in the Prussian schools), or of *Oberlehrer*, upper master. The *Oberlehrer* is so either by post or by nomination. The posts conferring the title of *Oberlehrer*, posts in the upper part of the school, can only be held by a teacher whose certificate entitles him to give instruction in one of the two highest classes. *Oberlehrer* by nomination are masters of long standing, who as *ordinarii* or general class-masters have done good service, and have the title of upper-master given to them in acknowledgment of it; but the title so conferred does not enable them to give instruction in any class for which their certificate does not qualify them. The regulations direct that there shall be not more than three *Oberlehrer*, exclusive of the director, for every seven *ordentliche Lehrer*, but that in schools with a larger staff of *ordentliche Lehrer* than this, the proportion of *Oberlehrer* to *ordentliche Lehrer* may become much larger. The minister confers the title of professor upon masters distinguished by their attainments and practical success. The directors rank as full professors of the universities, the masters with the title of professor rank as assistant professors of the universities. It should be said that in Germany the title of professor confers on its holder a fixed rank, as a few official titles do here in England. The director is more like one of our head masters than he is like a French *proviseur*, but he does not like our head masters give the whole of the instruction, or even the whole of the classical instruction, to the head class. Often he is not its *ordinarius*. He, like other masters, cannot give any part of the instruction for which he has not at some time proved his qualification. In general he has some special branch in which he is distinguished, and in this branch he gives lessons in *prima*, and usually in other classes too; governing also, as his name implies, the whole movement of the school, and appearing, much oftener than our head-masters, in every class of it.

Payment of schoolmasters.

Formerly few masterships had fixed incomes assigned to them, but it has more and more become a rule of administration in Prussia to give to all directors and teachers fixed incomes, and to do away with their sharing the school fees. Neither the proceeds of these, nor the proceeds of foundations, are in any case abandoned to the school staff, to do what they like with. On the school estimates which I have described, all salaries appear, and all receipts from endowments or from school fees; the surplus of

receipts over salaries and other school expenses is funded, and becomes available for enlarging or improving the school. There are few large endowments; in one or two cases, as at Schulpforta, the endowment is allowed to create for the director and the teachers a position above the average, and at Berlin, where the proceeds of the school-fees are very great, the masters of the public schools have also a position above the average; but all this is kept within strict regulation, and is settled, as I have said, by administrative boards of public composition, or under public supervision, and is not left to the disposition of the school staff itself. Schulpforta has a yearly income of more than 8,000*l.*, but of this sum less than 2,000*l.* goes in salaries to the rector and masters. The yearly sum funded, after all the expenses of this noble foundation are paid, is not much smaller than the sum spent in salaries.

By a *Normaletat*, or normal estimate, there is fixed for the staff of State gymnasiums the following scale of payments, which is above rather than below the average scale in *Realschulen*, or in any kind of secondary school not of State patronage. The scale has three classes; the first class is for nine places in Prussia, exclusive of Berlin and Schulpforta, which stand on an exceptional footing of their own; the second class is for 34 places; the third class for 58. Of course the nine places in the first class, being the principal towns in Prussia except the capital, have far more than nine gymnasiums. In all the State gymnasiums of these nine places, the scale of salaries is, for the director, 270*l.* a year; for the masters, according to their post and their length of standing, from 90*l.* a year to 195*l.* In the 34 places of the second class, the scale is, for a director, 240*l.* a year; for the masters, from 82*l.* 10*s.* to 172*l.* 10*s.* In the 58 places of the third, for a director 195*l.*; for the masters, from 75*l.* to 150*l.* The salaries thus fixed are meant to represent the whole emoluments of the post; when a house is attached to a post, the rule is that a deduction of 10 per cent. shall be made from the salary to balance the gain by the house. In some places there are special endowments for augmenting masters' salaries; thus the *Streitsche Stiftung* gives 455*l.* a year to augment the masters salaries at the Greyfriars gymnasium, in Berlin; but nowhere probably in Prussia does a school salary reach 350*l.* a year, and the rector of Schulpforta, whose post is perhaps the most desirable school post in the Prussian dominions, has, I understand, about 300*l.* a year, and a house. To hold another employment (*Nebenamt*) along with his school post, is not absolutely forbidden to the public teacher; thus Dr. Schopen, the excellent Latin scholar at the head of the Bonn gymnasium, is at the same time professor in the philosophical faculty of the University there; but the *Nebenamt* must not interfere with his school duty, and the supervising authorities take good care that it shall not. So far as it does not interfere with his school duty, the public teacher may give private tuition, and in this manner increase his income; but to give private tuition for fee to the pupils of his own form in the

public school, he needs the director's consent. Even when every possible addition to it has been allowed for, the salary of a Prussian schoolmaster will appear to English eyes very low.

The whole scale of incomes in Prussia is, however, much lower than with us, and the habits of the nation are frugal and simple. The rate of schoolmasters' salaries was raised after 1815, and has been raised again since; it is not exceptionally low as compared with the rates of incomes in Germany generally. The rector of Schulpforta with his 300*l.* a year and a house, has in all the country round him—where there is great well-doing and comfort—few people more comfortably off than himself; he can do all he wants to do, and all that anybody about him does, and this is wealth. The schoolmasters of the higher school enjoy, too, great consideration; and consideration, in a country not corrupted, has a value as well as money. As a class, the Prussian schoolmasters are not, so far as I could find out, fretting or discontented; they seem to give themselves heartily to their work, and to take pride and pleasure in it.

What I have yet to say about Prussian schools, their scholars, and their teachers, may perhaps be best said in connexion with two or three of those institutions which I visited. In this manner I shall have an opportunity of rendering, by the help of particular illustrations, general results and statements more interesting to the Commissioners, and more intelligible to them.

Notice of particular schools. The Berlin schools.

Berlin has four royal gymnasiums, one with a *Realschule* annexed; four municipal gymnasiums, one with a *Realschule* annexed; four other municipal *Realschulen*, and one higher Burgher School. All these are full; there were, in 1863, 6,874 scholars in them, without counting the children in the *Vorschulen* or preparatory schools which several of them have as appendages; but the supply of higher schools in Berlin is not sufficient for the demand, and the municipality, which was spending in 1863 more than 40,000*l.* a year on the secondary and primary schools of the city, is about to provide several higher schools more. All through Prussia one hears the same thing; the secondary schools are not enough for the increasing numbers whom the widening desire for a good education (*der weiter verbreitete Bildungstrieb*) sends into them. The State increases its grants, and those grants are met by increased exertions on the part of the communes, but still there is not room for the scholars who come in, and the rise which has taken place in the rate of school-fee has in no degree stopped them. To obtain the State's consent to the formation of a new school with the name and rights of a public secondary school, a commune must satisfy the State authority both that its municipal schools for the poor will not be pinched for the sake of the new establishment, and also that it can provide resources to carry on the new establishment properly, and in conformity with the requirements of the *Lehrplan*. This is being done in all directions.

The *Friedrich-Wilhelms Gymnasium.*

Perhaps the most remarkable of the higher schools at Berlin is the *Friedrich-Wilhelms Gymnasium*. The Greyfriars gymnasium (*Gymnasium zum grauen Kloster*) has about the same number of scholars, but with the *Friedrich-Wilhelms Gymnasium* is connected

a *Realschule;* a *Vorschule,* or preparatory school, common to the gymnasium and the *Realschule* both; and a girls' school, called from the then Crown Princess of Prussia who gave it her name in 1827, the *Elisabetschule.* There were at the end of 1863, 2,200 scholars in the whole institution together; 581 in the Gymnasium, 601 in the *Realschule,* 522 in the preparatory school, and 496 in the girls' school. The gymnasium is remarkable as being the only higher school in Prussia, except the *Realschule* on the Franck foundation at Halle, where the receipts from the scholars cover the expenditure of the school. The annual expenditure for the gymnasium, *Realschule,* preparatory school and *Elisabetschule* together, is in round figures 65,000 thalers; the receipts from the scholars' fees are in round figures 53,000 thalers. The property of the institution is very small, producing about 400*l.* a year only, so the deficiency is made up by a State grant of about 10,000 thalers; this deficiency, however, arises not in the gymnasium, where the school-fees more than cover the expenses, but in the schools allied with it.

Its history.

The history of this institution is the history of many public schools in Prussia. It owes its origin to the church, and has then in course of time passed under the superintendence of the State. I have mentioned the establishment by Johann Hecker in 1747 of the first *Realschule* at Berlin. Hecker was preacher at the Trinity Church in the Friedrichsstadt, and he grouped together several small schools in his parish under the name of a *Realschule.* The institution throve from the first; in 1748 it had 808 scholars, and 20 years afterwards it had 1267. It was governed by the curators of the Trinity Church and by inspectors of their appointment; and it was supported, having no endowment except a very trifling house-property, by voluntary contributions and by school-fees. The Latin school, which was one of the grouped schools, grew in importance, and at the 50th anniversary of the institution it received the name of *Friedrich-Wilhelms Gymnasium,* and in 1803 was rebuilt with a grant from the king of nearly 10,000*l.* towards the rebuilding. At the great reforming epoch of 1809 it passed with the other public secondary schools of Berlin under the administration of the Education Department; this change being sanctioned, not only by public opinion, but by the governing bodies of the schools themselves, with the view of giving to these great and important metropolitan establishments the benefit of a common and intelligent direction. The *Friedrich-Wilhelms Gymnasium* is now, therefore, both for *interna* and *externa,* under the School Board of the province of Brandenburg, to which, as soon as the School Boards were constituted, the central department transferred its direct charge of the public schools.

Its confessional character, teachers and charges.

The gymnasium is by foundation Protestant, and out of the 600 boys whom I found there, only 20 were Catholics and 15 were Jews. The united schools have a joint director and a joint administration of their affairs. They have altogether 66 teachers, of whom 21 are for the gymnasium. Of these 21, 11 are *Oberleherer,* and of these 11, six or seven have the title of Professor. The director is Dr. Ferdinand Ranke, a brother of the historian;

he has been nearly 25 years director here, and more than 40 years in the profession. He and seven of the upper masters of the gymnasium are lodged in the school buildings, which are very plain; but in the school-court is one of those relics of the past, so far more common in the German schools, as in ours, than in the French, the inscription on Hecker's original school-house: *Scholæ Trinitatis ædes in Dei honorem, regis gaudium, civium salutem, juventutis institutioni dicatæ.* There are no boarders, a boarding establishment which originally formed part of the institution having been done away in 1832. The scholars all through the school pay the same fee, 26 thalers a year (3*l.* 18*s*). In the *Vorschule* the fee is the same; in the *Realschule* it is only two thalers a year lower. In one gymnasium at Berlin the scholars pay four thalers a year more than in the *Friedrich-Wilhelms Gymnasium*; in all the others they pay one thaler less. There is very considerable variety in the rate of school fees in Prussia, the circumstances of the school and locality being always taken into account in fixing it. The rate in the metropolitan schools is of course a comparatively high one, low as it seems to us. Many schools have a rate rising with the class or division; thus in the gymnasium at Wetzlar the boys in *sexta* and *quinta* pay 16 thalers, those in *quarta* and *tertia* pay 10 thalers, those in *secunda* and *prima* pay 20 thalers. In some schools the rate is as low as eight or ten thalers for the lower classes, and 14 or 16 thalers for the higher. As an average rate for all the gymnasiums of Prussia, 20 thalers (3*l.*) a year, would certainly be rather above the mark than under it. The rates in the *Realschulen* and the higher Burgher Schools do not in general range below those of the classical schools. Moderate as these present rates appear to us, they are much higher than they used to be; in the *Friedrich-Wilhelms Gymnasium* the school fee 20 years ago was only 16 thalers in *sexta* and *quinta*, and 20 thalers in the other classes. In many provincial schools it was astonishingly low, as low as two, two and a half, and three thalers. In a gymnasium I have already mentioned, the *Magdalenen-Gymnasium* at Breslau, there was, in 1824, a uniform fee of eight thalers, and there is now a uniform fee of 24 thalers. In the *Friedrich-Wilthelms Gymnasium* I found that 10 per cent. of the 600 scholars had free schooling. The number of free posts as they are called (*Freistellen*) varies in different schools; in some it goes up to 25 per cent., but I think 10 per cent. may be taken as a fair average. These free posts are given on the ground of need and public claim. There are also a few exhibitions in the *Friedrich-Wilhelms Gymnasium*, but it will be best to notice the subject of exhibitions when I am speaking of some older and richer establishment.

Its classes.

Of course in the very large schools it is not possible to actually group and teach the scholars in six classes, nor yet is it always possible to observe the rule which enjoins that there shall not be more than 40 scholars in either *secunda* or *prima*, or more than 50 in any of the other classes. The supply of class rooms falls short, even more than the supply of teachers. The highest class, however, always remains *prima*, as in our great schools it always remains the

sixth; and in the higher classes the Germans, as I have already mentioned, follow, when it is necessary, the plan of having an upper and lower division (*oberprima*, *unter-prima*) and in other classes both this plan and the plan of having two groups or assemblages (*cœtus*) at the same stage of school work, and advancing parallel to one another.

Its lessons.

The first lesson I heard was Dr. Ranke's own lesson to *prima*, on the *Philoctetes* of Sophocles. He spoke Latin to his class and his class spoke Latin in answer; this is still a common practice in the German schools, though not so common as formerly. The German boys have certainly acquired through this practice a surprising command of Latin; Dr. Schopen's lesson at Bonn to his *prima* in extemporaneous translation into Latin—a lesson which has a deserved celebrity—I heard with astonishment; a much wider command of the Latin vocabulary than our boys have, and a more ready management of the language, the Germans certainly succeed in acquiring. On the other hand, the best style of the best authors is not, to my mind, so well caught in Latin composition by their boys as by ours. This is more particularly the case in verse, where their best scholars often show, I cannot but think, not only a want of practical skill (that of course is nothing), but a want of tact for what is uncouth and inadmissible, which one would not have expected of people who know the Latin models so well. The same is true, in a less degree, of their prose; the best scholars in the best schools of England or France, if set to write a speech or a character in the style of Cicero or Tacitus, would, I think, in general acquit themselves of the task more happily than the corresponding boys of a German school.

But the feeling which was strongest with me in the Berlin *Philoctetes* lesson was the feeling that one seemed to be back in the sixth form at Rugby again, as I remember it nearly 30 years ago. After the lecture rooms at Oxford, and the French *lycées*, and the Italian *licei*, here was at last a body of pupils once more who had worked at their lesson, had learnt Greek, and were at home in a Greek play. What the Berlin boys knew about the scope of the play, its chief personages, and the governing idea and character of each, was more than the Rugby boys would have known; but the quantity of lines done, the style of doing them, and the extent of scholarship expected in the boys, and found in them, seemed to me as nearly as possible the same thing at Berlin and at Rugby. I thought the same in the afternoon when I heard Professor Zumpt (a son of the famous Latin scholar) take *unter prima* in Cicero's speech *Pro Sex. Roscio Amerino*. The boys had been through the oration during the early part of the half-year; now they were going very rapidly through it again, translating into fluent German without taking the Latin words. The master let the boys be the performers, and spoke as little as possible himself, but every good or bad performance was noticed. Just the same with lessons in Thucydides, Livy, and Horace, which I heard at other gymnasiums in Berlin; the lessons had been well prepared

by the pupils, the master made few comments and only on really noteworthy matters or to cite some parallel passage which was not likely to have come within his pupils' reading; in general, when he spoke it was to question, and he questioned closely. I was struck with the exact knowledge of the Horatian metres which the *unter-prima* boys at Greyfriars showed when questioned on them. I found that the practice was to begin by taking eleven odes as specimens of metre, and carefully studying these before proceeding further. Then they commence the *Odes* at the beginning and go right through them. The portion of a Latin or Greek author got through at a lesson is about the same as in the corresponding form in one of the best English schools, but either in school or by private study the boys have certainly read more than our boys or the French; it is the general rule that a boy who goes in for the leaving examination has read Homer all through. A larger number of the boys, too, seem to have really benefited by the instruction, and to be in the first flight of their class, than with us. But the great superiority of the Germans, and where they show how much further they have gone in *Alterthumswissenschaft* than we have, is in their far broader notion of treating, even in their schools, the ancient authors as *literature*, and conceiving the place and significance of an author in his country's literature, and that of the world: in this way the student's interest in Greek and Latin becomes much more vital, and the hold of these languages upon him is much more likely to be permanent. This is to be set against the superior finish and elegance of the best of our boys in Latin and Greek composition; above all, in Latin and Greek verse. Greek verse, indeed, can scarcely be said to be a school exercise at all, so far as I could see or hear, in the foreign schools.

Instead of having to write Greek iambics, the boys in *prima* at the *Friedrich-Wilhelms Gymnasium*, on one of the days when I was there, had had to write a summary of Lessing's essay on the epigram. The summaries were handed to the professor, who then made a boy stand up and give in his own words the substance of Lessing's essay, beginning at the beginning, the professor commenting and asking questions as the boy proceeded. Presently another boy was set on, and in this way they went through the essay. The lesson was as much out of the range of my English school experience as the lesson on the *Femmes Savantes* of Molière which I heard, as I have already said, with so much interest in the *École Normale* at Paris. The Berlin lesson, like the Paris one, was very interesting.

In the lower division of *tertia* (about the middle of the school) I had another opportunity of observing a way, not, I think, in use in England, of practising the boys in Latin. The lesson was Ovid; the boys had had to translate at home a certain portion of Ovid into German, and then to bring their translation with them to school. This they had then, in school, to turn back into Latin, not metrical. After this, boys were called up one after another, as in England, to say a few lines of Ovid by heart: but then, again,

each boy had also to say in German prose the passage he had just recited in Ovid's verse.

In *quinta* I heard the religious instruction. For boys still so near the primary school stage, religious instruction, as a part of the school lessons, seems to me to be still, as in the primary school, in place, and still useful; in the higher classes of the secondary school it seems to me, I confess, unprofitable and inappropriate. Anything more futile and useless than the lesson in the *Galatians* which I heard given to *secunda* at Bonn cannot possibly be imagined. In *quinta* here at Berlin, it was different; the boys were first questioned in Bible narratives from a text-book; a good text-book and good questioning; then they said Luther's Short Catechism, and then they repeated hymns. The two or three Catholic and Jewish boys belonging to the class did not come to this lesson.

School-books.

The mention of a text-book reminds me to say a word about the rule, in the Prussian public schools, for school-books. The masters choose the books, but the approval of the Provincial Board must be obtained for their choice; before approving for the first time any new book, the Provincial Board must refer to the Education Minister and his Council. When a book has once been approved for a gymnasium, it may be used in any other gymnasium or progymnasium of the same province; but approval for a gymnasium does not count for a *Realschule*, and *vice versâ*.

I must in passing remark to the Commissioners how greatly some intelligent censorship like that of the Provincial Boards and the Minister in Prussia, or that of the Council of Public Instruction in France, is needed for school books in England. Many as are the absurdities of our state of school anarchy, perhaps none of them is more crying than the book-pest which prevails under it Every school chooses *ad libitum;* most schools make a trade of book-dealing, and therefore it is for their interest to have books which are not used elsewhere, and which the pupil will not bring with him from his last school; so that a boy who has been at three or four English schools has often had to buy a complete new set of school-books for each. The extravagance of this is bad enough; but then, besides, as there exists no intelligent control or selection of them, half at least of our school-books are rubbish, and to the other defects of our school system we may add this, that in no other secondary schools in Europe do the pupils spend so much of their time in learning such utter nonsense as they do in ours.

The Greyfriars gymnasium. Its history and endowment.

I have mentioned the Greyfriars gymnasium, where I also heard lessons, and where they were of the same character as at the *Friedrich-Wilhelms Gymnasium*, a character much more like that of the lessons in our best English public schools than of the lessons in the French *lycées*. The history of Greyfriars is this: it occupies the site of a Franciscan convent abolished at the Reformation; in 1574 the third part of the convent premises was assigned by the elector, at the instance of the town magistracy, for use as a public school. The magistracy endowed it, and the elector made

it over to them, but with an electoral *Schulordnung*. Here from the earliest times of the school there was a *convictorium* (the Italian *convitto*). The robust appetite of the 16th century for the humanities appears in the original plan of work; Greek had thirteen hours a week, Latin ten, logic two, arithmetic two, singing five. In 1655 the school had 400 scholars. In the second quarter of the 18th century the mother tongue and its literature first appears as part of the school course; the German public schools having thus the start of ours, in this particular, by about 125 years. In 1793 the school got the benefit of a great endowment which I have already mentioned, the *Streitsche Stiftung;* the capital of this endowment is now 33,000*l.* It is administered by a *Directorium* composed, not of Sigismund Streit's descendants, but as follows: the provost of St. Nicholas (parish minister), the director and the prorector of the school, a councillor of the Education Department, a merchant or tradesman, and a lawyer. The financial administration of this *Directorium* is controlled, in the manner I have already described, by the public finance officers of the *Regierung* or governmental district in which Berlin stands.

Streit's endowment maintains at Greyfriars teachers of the modern languages, of astronomy, and of music, provides a *Wohncommunität* (lodging, bedding, fire and lights) for 12 scholars, and a *Freitisch* (board) for 24 more; and keeps improving the school library (now of 20,000 volumes), the observatory, collections, &c. It also augments the salaries of the director and a number of the masters. Other benefactions provide the widows of masters who die in office with a sum for their husband's funeral expenses, and a pension of 45*l.* a year. There is an endowment of nearly 450*l.* a year for exhibitions to be enjoyed at the school, and of 150*l.* a year for exhibitions at the Universities. Every two years is held a school-festival in honour of founders and benefactors. The school premises had an important enlargement by Crown grants of land in 1819 and 1831, and great additions have since that time been made to the buildings. I found about 550 boys, with a director and 25 masters. On an average 25 boys pass the *Abiturientenexamen* from this school every year. Here, too, as at the *Friedrich-Wilhelms Gymnasium*, the number of free posts is 10 per cent. They are provided by the municipality. The school gets a grant of about 100*l.* a year from the state and 1,000*l.* a year from the city of Berlin.

Day scholars and boarders in German schools.

By original foundation and by endowment this school too is Protestant. Hardly any Catholic boys are here, but of Jewish boys there are 70 or 80. About a third of the whole number of the scholars are *auswärtige*, boys who come from a distance and cannot, therefore, live with their parents. The great *internats* of the French *lycées* are unknown in Germany; the *Alumnate* or *Convicte* of the German schools are properly establishments like *college* at Eton or Winchester, and are for foundationers; for establishments like the School House and the masters' boarding-houses at Rugby, or Commoners at Winchester, the strict designation would in Germany be *Pensionat*, *Pensionsanstalt*, and not

Alumnat. The practice of having one's son live at home and go to school for his lessons only, obtains much more widely in Germany than with us; 40,000 of the 66,000 boys in the Prussian higher schools are day scholars. Still this leaves 26,000 who are not; and of these the vast majority live with some respectable family in the place where they go to school. The household with which their son is to board or lodge is designated by the parent, but must by the school regulations of Prussia be approved by the director of the boy's school, who holds the householder responsible for the boys conduct out of school. The family life in North Germany is in general decent, kindly, and God-fearing; and a boy is, I think, much better placed as a boarder in this way than as an *interne* of a French *lycée*. Still the school authorities in Prussia are of opinion that the provision of boarding establishments in immediate connexion with the public schools needs increasing, and they design to increase it.

The patron at Greyfriars, for matters that do not come within the province of the *Directorium* of Streit's charity, is still, as the elector John George originally appointed, the city of Berlin, the municipality. The Commissioners will remember that for the *interna* of a Prussian gymnasium the intervention of the Provincial Board always subsists.

The *Joachimsthalsche Gymnasium.*

I must give a word in passing to the great *Alumnat* of Berlin, the *Joachimsthalsche Gymnasium.* Here I found 404 scholars; 120 of them were collegers (*Alumnen*), 12 were boarders in the establishment (*Pensionaire*); the rest were boys who came for the lessons only (*Hospiten*). Ten per cent. of these have free schooling. The *Pensionaire* pay only 24*l.* a year; the *Alumnen* are not all of them free of all cost; 25 of them pay 8*l.* 14*s.* a year, 75 of them pay 4*l.* 10*s.*; there are 20 places with board, lodging, and instruction all entirely free, for 20 proved scholars of the highest forms.

The *Joachimsthalsche Gymnasium* is a royal foundation, endowed with lands by the elector Joachim Frederick in 1607. It is also Protestant. The school has now an income of over 3,000*l.* a year from land, and of over 2,000*l.* a year from money in the funds. The Crown is the patron; the property is administered, owing to its connexion with the Crown domain, by the *Regierung* at Potsdam.

This is an interesting school, for the list of its masters contains the names of Buttmann, Schneider, Passow, Zumpt, Krüger, and Bergk. The director is Dr. Kiessling, a son of the editor of Theocritus. Constantly in the rolls of the German schools one is coming upon a well-known name of this kind; on the roll of former teachers at Greyfriars are to be found the names of Heindorf, Spalding, Droysen. Nor are other recollections, as interesting as any school in the world can boast, wanting to the Prussian schools. The Joachimsthal School had a scholar of *quarta* who, like so many German schoolboys, joined the army in the great uprising against the French in 1813. This boy was wounded at Leipzig, made the campaign of France, was at Waterloo, received the decoration of the Iron Cross, and finally, with the decoration on his breast, took his place again on his old school-bench as a scholar of *quarta.*

Schulpforta.

But no *Alumnat* in Prussia, or indeed in Germany, can compare with Schulpforta, which by its antiquity, its beauty, its wealth, its celebrity, is entitled to vie with the most renowned English schools. The Cistercian abbey of St. Mary's, Pforta, dates from 1137. It was secularised in 1540 and Duke Maurice of Saxony, in 1543, established in its place and endowed with its revenues a Protestant school for 100 scholars. It stands near the Saal in the pleasant country of Prussian Saxony, and the venerable pile of buildings rising among its meadows, hills, and woods, is worthy of the motto borne on the arms of the old Abbey: *Hier ist nichts anderes denn Gottes Haus, und hier die* Pforte *des Himmels.** It has a beautifully restored chapel, regular commemorative services, and a host of local usages. A Latin grace is sung in hall every day before dinner by the whole body of scholars. Every scholar has by ancient institution his *tutor*, every master his *famulus*. This is the German school where Latin verse has been most cultivated, and the *Musæ Portenses*, like those of Eton, have been published.

The property is very large, and considerable Church patronage is attached to it. Up to 1815, when it passed into the possession of Prussia, the old Abbey estate had still its feudal privileges, and enjoyed full civil and criminal jurisdiction. The property is now entirely under the superintendence of the School Board of the province of Saxony, which appoints a procurator for it. The revenues of Pforta are from 8,000*l.* to 9,000*l.* a year.

The great head-master of Schulpforta was Ilgen, whose name every one who has read the Homeric Hymns ought to respect. Ilgen was rector for nearly 30 years, from 1802 to 1831, and his reforms make this period an epoch in the school's history. Few schools can show such a list of old scholars; Grævius, Ernesti, Klopstock, Böttiger, Mitscherlich, Fichte, Dissen, Thiersch, Spitzner, Döderlein, Spohn, were all of them schoolboys here.

There are now about 205 pupils; 180 *Alumnen* proper, or collegers; 20 boarders (*Pensionaire, Extraneer*), and four or five half boarders (*Semi-Extraneer*). These half boarders have, in fact, all the advantages of collegers, except board, for a payment of 7*l.* 10*s.* a year; their board they get at a master's. The real *Extraneer* board and lodge with a master; they pay him about 45*l.* a year for their board and lodging and the school 5*l.* 8*s.* a year for their instruction.

The *Alumnen* proper have all of them certain payments to make; those exacted, however, from the 140 who hold *Freistellen* are very trifling. There are 30 old *Koststellen*, or posts with board, the holders of which pay about 3*l.* a year each, and 20 new *Koststellen*, the holders of which pay 7*l.* As a general rule, a boy is not admitted at once to a *Freistelle*. The right of nominating to about half the posts on the foundation belongs to the Crown, that to the other half to different municipalities. Of the Crown appointments a certain number is reserved, by convention with the Saxon Govern-

* "This is none other but the house of God, and this is the gate (*porta, pforte*) of heaven."—Gen. xxviii. 17.

ment when Pforta passed into Prussia's possession, for natives of the duchy of Saxony. The rest are given, on grounds of public claim, by the Minister of Justice and the Home Secretary. No boy is admitted till he is 12 years old; he must be able to pass for *tertia*. The school begins with *tertia*, but it has six forms, because there is an upper and a lower division of each class. There are 77 boys in the two divisions of *tertia*, 79 in the two of *secunda*, 49 in the two of *prima*. For some of the posts several boys are nominated, and the one who passes the best examination gets admitted; but the candidates here, the Commissioners will observe, must all of them be over 12 years of age. The school is well provided with exhibitions, in general of from 10*l*. to 15*l*. a year value, to the universities.

The *Studien-tag* at Schulpforta.

There is a noteworthy usage here of making one day in the week a *Studien-tag*, in which the boy is free from all school lessons that he may pursue his private studies. In the same spirit, in the *Gymnasien* generally, promising boys in *prima* are excused certain of the school lessons, that they may work at matters which specially interest them. Results of this private study are to be produced at the *Abiturienten-examen*, and are taken into account for the leaving certificate. Nothing could better show the freedom of Germany, as compared with France, in treating school matters, than a practice of this kind, which to the French authorities would appear monstrous. In England the school authorities would have a belief, in general too well justified, that none of our boys has any notion of such a thing as systematic private study at all.

Games and gymnastics.

At Schulpforta they are very proud of their playing field, which is indeed, with the wooded hill rising behind it, a pleasant place; but the games of English playing fields do not go on there; instead of goals or a cricket ground, one sees apparatus for gymnastics. The Germans, as is well known, now cultivate gymnastics in their schools with great care. Since 1842 gymnastics have been made a regular part of the public school course; there is a *Central-Turnanstalt* at Berlin, with 18 civilian pupils who are being trained expressly to supply model teachers of gymnastics for the public schools. The teachers profess to have adapted their exercises with precision to every age, and to all the stages of a boy's growth and muscular development. The French are much impressed by what seems to them the success of the Germans in this kind of instruction, and certainly in their own *lycées* they have not at present done nearly so much for it. Nothing, however, will make an ex-schoolboy of one of the great English schools regard the gymnastics of a foreign school without a slight feeling of wonder and compassion, so much more animating and interesting do the games of his remembrance seem to him. This much, however, I will say; if boys have long work hours, or if they work hard, gymnastics probably do more for their physical health in the comparatively short time allotted to recreation than anything else could. In England the majority of public schoolboys work far less than the foreign schoolboy, and for this majority the English games are delightful; but for the few hard students with us there

is in general nothing but the *constitutional*, and this is not so good as the foreign gymnastics. For little boys, again, I am inclined to think that the carefully taught gymnastics of a foreign school are better than the lounging shiveringly about, which used often at our great schools to be the portion of those who had not yet come to full age for games.

The *Friedrich-Wilhelms Gymnasium* at Cologne.

All the schools I have hitherto described are denominational schools; before I conclude I must describe a mixed (*simultan*) school, or the nearest approach to it to be found. Such a school is the *Friedrich-Wilhelms Gymnasium* at Cologne. Cologne, as every one knows, is Catholic; up to 1825 it had only one gymnasium, a Catholic one. It has now two Catholic gymnasiums, one with 382 scholars, the other with 281; it has also a *Realschule* of the first rank, with 601 scholars.* Besides these schools it has a Protestant gymnasium, with *real* classes, as we should say, with a modern school forming part of it. This is the *Friedrich-Wilhelms Gymnasium.* An old Carmelite college, which had become the property of the municipality, was in 1825 made into a public gymnasium, in order to relieve the overcrowding in the Catholic gymnasium and to provide special accommodation for the Protestants. In 1862 this school was, by the subscriptions of friends, both Catholic and Protestant, provided with *real* classes up to *secunda*, the two lowest classes (*sexta* and *quinta*), being common to both classical and *real* scholars. There are, therefore, in fact, three special classes for *real* scholars; or, as we should say, a modern school of three classes. There are 356 boys in the classical school, and about 100 in the modern school. Of the boys in the classical school 125 only are Protestants, though this school is by foundation *evangelisch;* 215 are Catholics and 16 are Jews. Nothing could better show how little the "religious difficulty" practically exists in Prussian schools, than this abundance of Catholic scholars in a Protestant school, where the director and the majority of the 15 masters are Protestants. The regular religious instruction of the school is of course Protestant; but the Catholics being in such numbers a special religious instructor has been provided for them, as, too, there is a special religious instructor provided for the Protestants in the two Catholic gymnasiums. It will be remembered that where the boys not of the confession for which the school is founded are very few in number the parents have to make private arrangements for their religious instruction, and the school does not provide it. The school fee is from 18 to 22 thalers a year, according to the form a boy is in.

The property of the school brings in less than 200*l.* a year. The State contributes about 900*l.* a year. School fees produce almost exactly the same sum. The municipality gave in the first instance the school premises, and now contributes about 50*l.* a year to keep them up. It is a Crown patronage school, but the *externa*, or property concerns, of this school, as of all the gymnasiums and school endowments of Cologne, are managed by a local *Verwal-*

* Cologne is a town of 120,570 inhabitants.

tungsrath, or council of administration. This *Verwaltungsrath* is thus composed: a representative of the Provincial School Board, the directors of the three gymnasiums, with a lawyer, a financier and an administrator, and two citizens of Cologne; these last five chosen, on the presentation of the Common Council, by the Provincial School Board. For the *Studienfonds*, which are endowments general for education in Cologne, and not affected to particular institutions, a Catholic ecclesiastic is added to the *Verwaltungsrath*. These *Studienfonds* are very considerable, producing close upon 60,000 thalers a year (9,000*l.*) The *Verwaltungsrath* has a staff of seven clerks, office keepers, &c., and both council and staff are paid for their services.

The director was the personage already mentioned, whose nomination to a school * the Education Minister had refused to confirm, because of the nominee's politics. I had much conversation with him, and he struck me as a very able man. He said, and his presence in this Cologne school confirmed it, that the Government found it impossible to treat their school patronage politically, even so far as the directors or headmasters were concerned. The appointment of the professor and teachers, he declared, it never even entered into the Government's head to treat politically. We went through the school admission book together, that I might see to what class in society the boys chiefly belonged. We took a class in the middle of the school, and went through this boy by boy, both for the classical school and the modern school. As it happened, the social standing of the *real* scholars was on the whole somewhat the highest, but there was very little difference. There were a few peasants' children, picked boys from the elementary schools in the neighbourhood, but these were all of them bursars. There were a good many sons of Government officials. But the designation I found attached to by far the greater number of parents' names was *Kaufmann*—"trader." I heard several lessons, and particularly noticed the English lesson in the third class of the modern school. This lesson was given by a Swiss, who spoke English very well, and who had been, he told me, a teacher of modern languages at Uppingham. I thought here, as I thought when I heard a French lesson at Bonn, that the boys made a good deal more of these modern language lessons in Germany than in England; the Swiss master at Cologne said this impression of mine was quite right. Even in France I thought these lessons better done,—with better methods, better teachers, and more thoroughly learned,—than in England. In Germany they were better than in France. The lessons in the natural sciences, on the other hand, which in France seemed to me inferior to the mathematical lessons, I thought less successfully given in Germany than even in France. But of this matter I am a very incompetent judge, and England, besides, supplied me here with no standard of comparison, for in the English schools, when I knew them, the natural sciences were not taught at all. The classical work in the Cologne gym-

* The school was the gymnasium at Bielefeld.

nasium was much the same that I had seen in other Prussian gymnasiums, and calls for no particular remark.

Studies of the *Gymnasium* and of the *Realschule.* Conflict between their partisans.

Dr. Jäger, the director of the united school, well placed, therefore, for judging, and, as I have said, an able man, assured me it was the universal conviction with those competent to form an opinion, that the *Realschulen* were not, at present, successful institutions. He declared that the boys in the corresponding forms of the classical school beat the *Realschule* boys in matters which both do alike, such as history, geography, the mother tongue, and even French, though to French the *Realschule* boys devote so far more time than their comrades of the classical school. The reason for this, Dr. Jäger affirms, is that the classical training strengthens a boy's mind so much more.

This is what, as I have already said, the chief school authorities everywhere in France and Germany testify; I quote Dr. Jäger's testimony in particular, because of his ability and because of his double experience. In Switzerland you do not hear the same story, but the regnant Swiss conception of secondary instruction is, in general, not a liberal but a commercial one; not culture and training of the mind, but what will be of immediate palpable utility in some practical calling, is there the chief matter; and this cannot be admitted as the true scope of secondary instruction. Even in Switzerland, too, there is a talk of introducing Latin into the *Realschule* course, which at present is without it; so impossible is it to follow absolutely the commercial theory of education without finding inconvenience from it.

Probable issue of this conflict. New conception of the aim and office of instruction.

Several times in this Report I have touched upon the conflict between the gymnasium and the *Realschule,* between the partisans of the old classical studies and the partisans of what are called real, or modern, or useful studies. This conflict is not yet settled, either by one side crushing the other by mere violence, or by one side clearly getting the best of the other in the dispute between them. We in England, behindhand as our public instruction in many respects is, are nevertheless in time to profit, and to make our schools profit, by the solution which will certainly be found for this difference. I am inclined to think that both sides will have, as is natural, to abate their extreme pretensions. The modern spirit tends to reach a new conception of the aim and office of instruction; when this conception is fully reached, it will put an end to conflict, and will probably show both the humanists and the realists to have been right in their main ideas. The aim and office of instruction, say many people, is to make a man a good citizen, or a good Christian, or a gentleman; or it is to fit him to get on in the world, or it is to enable him to do his duty in that state of life to which he is called. It is none of these, and the modern spirit more and more discerns it to be none of these. These are at best secondary and indirect aims of instruction; its prime direct aim is to enable a man *to know himself and the world.* Such knowledge is the only sure basis for action, and this basis it is the true aim and office of instruction to supply. To know himself, a man must know the capabilities and performances of the human

spirit; and the value of the humanities, of *Alterthumswissenschaft*, the science of antiquity, is, that it affords for this purpose an unsurpassed source of light and stimulus. Whoever seeks help for knowing himself from knowing the capabilities and performances of the human spirit, will nowhere find a more fruitful object of study than in the achievements of Greece in literature and the arts during the two centuries from the birth of Simonides to the death of Plato. And these two centuries are but the flowering point of a long period, during the whole of which the ancient world offers, to the student of the capabilities and performances of the human spirit, lessons of capital importance.

The circle of knowledge takes in both the humanities and the study of nature.

This the humanists have perceived, and the truth of this perception of theirs is the stronghold of their position. It is a vital and formative knowledge to know the most powerful manifestations of the human spirit's activity, for the knowledge of them greatly feeds and quickens our own activity; and they are very imperfectly known without knowing ancient Greece and Rome. But it is also a vital and formative knowledge to know the world, the laws which govern nature, and man as a part of nature. This the realists have perceived, and the truth of this perception, too, is inexpugnable. Every man is born with aptitudes which give him access to vital and formative knowledge by one of these roads; either by the road of studying man and his works, or by the road of studying nature and her works. The business of instruction is to seize and develope these aptitudes. The great and complete spirits which have all the aptitudes for both roads of knowledge are rare. But much more might be done on both roads by the same mind, if instruction clearly grasped the idea of the entire system of aptitudes for which it has to provide; of their correlation, and of their *equipollency*, so to speak, as all leading, if rightly employed, to vital knowledge; and if then, having grasped this idea, it provided for them. The Greek spirit, after its splendid hour of creative activity was gone, gave our race another precious lesson, by exhibiting, in the career of men like Aristotle and the great students of Alexandria, this idea of the correlation and equal dignity of the most different departments of human knowledge, and by showing the possibility of uniting them in a single mind's education. A man like Eratosthenes is memorable by what he performed, but still more memorable by his commanding range of studies, and by the broad basis of culture out of which his performances grew. As our public instruction gets a clearer view of its own functions, of the relations of the human spirit to knowledge, and of the entire circle of knowledge, it will certainly more learn to awaken in its pupils an interest in that entire circle, and less allow them to remain total strangers to any part of it. Still, the circle is so vast and human faculties so limited, that it is for the most part through a single aptitude, or group of aptitudes, that each individual will really get his access to intellectual life and vital knowledge; and it is by effectually directing these aptitudes on definite points of the circle, that he will really obtain his comprehension of the whole.

This not enough recog-

Meanwhile neither our humanists nor our realists adequately

nized at present. Tyranny of the humanists; tyranny of the realists.

conceive the circle of knowledge, and each party is unjust to all that to which its own aptitudes do not carry it. The humanists are loth to believe that man has any access to vital knowledge except by knowing himself—the poetry, philosophy, history which his spirit has created; the realists, that he has any access except by knowing the world—the physical sciences, the phenomena and laws of nature. I, like so many others who have been brought up in the old routine, imperfectly as I know letters—the work of the human spirit itself—know nothing else, and my judgment therefore may fairly be impeached. But it seems to me that so long as the realists persist in cutting in two the circle of knowledge, so long do they leave for practical purposes the better portion to their rivals, and in the government of human affairs their rivals will beat them. And for this reason. The study of letters is the study of the operation of human force, of human freedom and activity; the study of nature is the study of the operation of non-human forces, of human limitation and passivity. The contemplation of human force and activity tends naturally to heighten our own force and activity; the contemplation of human limits and passivity tends rather to check it. Therefore the men who have had the humanistic training have played, and yet play, so prominent a part in human affairs, in spite of their prodigious ignorance of the universe; because their training has powerfully fomented the human force in them. And in this way letters are indeed *runes*, like those magic runes taught by the Valkyrie Brynhild to Sigurd, the Scandinavian Achilles, which put the crown to his endowment and made him invincible. Still, the humanists themselves suffer so much from the ignorance of physical facts and laws, and from the inadequate conception of nature, and of man as a part of nature—the conduct of human affairs suffers so much from the same cause—that the intellectual insufficiency of the humanities, conceived as the one access to vital knowledge, is perhaps at this moment yet more striking than their power of practical stimulation; and we may willingly declare with the Italians* that no part of the circle of knowledge is common or unclean, none is to be cried up at the expense of another. To say that the fruit of classics, in the boys who study them, is at present greater than the fruit of the natural sciences, to say that the realists have not got their matters of instruction so well adapted to teaching purposes as the humanists have got theirs, comes really to no more than this: that the realists are but newly admitted labourers in the field of practical instruction, and that while the leading humanists, the Wolfs and the Buttmanns, have been also schoolmasters, and have brought their mind and energy to bear upon the school-teaching of their own studies, the leaders in the natural sciences, the Davys and the Faradays, have not. When scientific physics have as recognized a place in public instruction as Latin and Greek, they will be as well taught.

* "Essendo diverse le parti dell' insegnamento, nessuno mostri di spregiare le altre, esaltando troppo quella cui è addetto. Nessun ramo del sapere è meno necessario; di tutte le scienze si avvantaggia l'umana società; tutte cospirano al suo bene."—*Sulle Condizioni*, &c., p. 384.

The Abbé Fleury, than whom no man is a better authority, says of the mediæval universities, the parents of our public secondary schools: *Les universités ont eu le malheur de commencer dans un temps où le goût des bonnes études était perdu.* They were too late for the influences of the great time of Christian literature and eloquence, the first five centuries after Christ; they were even too late for the influences of the time of Abelard and Saint Bernard. And Fleury adds: *De là* (from these universities founded in a time of inferior insight) *nous est venu ce cours réglé d'études qui subsiste encore.* He wrote this in 1708, but it is in the main still true in 1867. All the historical part of this Report has shown that the great movements of the human spirit have either not got hold of the public schools, or not kept hold of them. What reforms have been made have been patchwork, the work of able men who into certain departments of school study which were dear to them infused reality and life, but who looked little beyond these departments, and did not concern themselves with fully adjusting instruction to the wants of the human mind. There is, therefore, no intelligent tradition to be set aside in our public schools; there is only a routine, arising in the way we have seen, and destined to be superseded as soon as ever that more adequate idea of instruction, of which the modern spirit is even now in travail, is fully born.

Our present school-course.

That idea, so far as one can already forecast its lineaments, will subordinate the matter and methods of instruction to the end in view; the end of conducting the pupil, as I have said, through the means of his special aptitudes, to a knowledge of himself and the world. The natural sciences are a necessary instrument of this knowledge; letters and *Alterthumswissenschaft* are a necessary instrument of this knowledge. But if school instruction in the natural sciences has almost to be created, school instruction in letters and *Alterthumswissenschaft* has almost to be created anew. The prolonged philological discipline, which in our present schools guards the access to *Alterthumswissenschaft*, brings to mind the philosophy of Albertus Magnus, the mere introduction to which—the logic—was by itself enough to absorb all a student's time of study. To combine the philological discipline with the matter to which it is ancillary—with *Alterthumswissenschaft* itself—a student must be of the force of Wolf, who used to sit up the whole night with his feet in a tub of cold water and one of his eyes bound up to rest while he read with the other, and who thus managed to get through all the Greek and Latin classics at school, and also Scapula's Lexicon and Faber's Thesaurus; and who at Göttingen would sweep clean out of the library shelves all the books illustrative of the classic on which Heyne was going to lecture, and finish them in a week. Such students are rare; and nine out of ten, especially in England where so much time is given to Greek and Latin composition, never get through the philological vestibule at all, never arrive at *Alterthumswissenschaft*, which is a knowledge of the spirit and power of Greek and Roman antiquity learned from its original works.

How to transform it. Excessive preponderance of grammatical studies,

But many people have even convinced themselves that the

preliminary philological discipline is so extremely valuable as to be an end in itself; and, similarly, that the mathematical discipline preliminary to a knowledge of nature is so extremely valuable as to be an end in itself. It seems to me that those who profess this conviction do not enough consider the quantity of knowledge inviting the human mind, and the importance to the human mind of really getting to it. No preliminary discipline is to be pressed at the risk of keeping minds from getting at the main matter, a knowledge of themselves and the world. Some minds have such a special aptitude for philology, or for pure mathematics, that their access to vital knowledge and their genuine intellectual life lies in and through those studies; but for one whose natural access to vital knowledge is by these paths, there will be ten whose natural access to it is through literature, philosophy, history, or through some one or more of the natural sciences. No doubt it is indispensable to have exact habits of mind, and mathematics and grammar are excellent for the promotion of these habits; and Latin, besides having so large a share in so many modern languages, offers a grammar which is the best of all grammars for the purpose of this promotion. Here are valid reasons for making every schoolboy learn some Latin and some mathematics, but not for turning the preliminary matter into the principal, and sacrificing every aptitude except that for the science of language or of pure mathematics. A Latin grammar of thirty pages, and the most elementary treatise of arithmetic and of geometry, would amply suffice for the uses of philology and mathematics as a universally imposed preparatory discipline. By keeping within these strict limits, absolute exactness of knowledge—the habit which is here our professed aim—might be far better attained than it is at present. But it is well to insist, besides, that all knowledge may and should, when we have got fit teachers for it, be so taught as to promote exact habits of mind; and we are not to take leave of these when we pass beyond our introductory discipline.

and of Latin and Greek composition.

But it is sometimes said that only through close philological studies and the close practice of Greek and Latin composition, can *Alterthumswissenschaft* itself, the science of the ancient world, be truly reached. It is said to be only through these that we get really to know Greek and Latin literature. For all practical purposes this proposition is untrue, and its untruth may be easily tested. Ask a good Greek scholar, in the ordinary English acceptation of that term, who at the same time knows a modern literature —let us say the French literature—well, whether he feels himself to have most seized the spirit and power of French literature, or of Greek literature. Undoubtedly he has most seized the spirit and power of French literature, simply because he has read so very much more of it. But if, instead of reading work after work of French literature, he had read only a few works or parts of works in it, and had given the rest of his time for study to the sedulous practice of French composition and to minutely learning the structure and laws of the French language, then he would know the French literature much as he knows the Greek; he might write very creditable French verses, but he would have seized the spirit and power of

French literature not half so much as he has seized them at present. No doubt it is well to know French philology like M. Littré, and to know French literature too; or to write Italian verse like Arthur Hallam, and to know Italian literature too; just as it is well to know the Greek lexicographers and grammarians as Wolf did, and yet to know, also, Greek literature in its length and breadth. But it needs a very rare student for this; and as, if an Englishman is to choose between writing Italian sonnets and knowing Italian literature, it is better for him to know Italian literature, so, if he is to choose between writing Greek iambics and knowing Greek literature, it is better for him to know Greek literature. But an immense development of grammatical studies, and an immense use of Latin and Greek composition, take so much of the pupil's time, that in nine cases out of ten he has not any sense at all of Greek and Latin literature as *literature*, and ends his studies without getting any. His verbal scholarship and his composition he is pretty sure in after life to drop, and then all his Greek and Latin is lost. Greek and Latin *literature*, if he had ever caught the notion of them, would have been far more likely to stick by him.

I was myself brought up in the straitest school of Latin and Greek composition, and am certainly not disposed to be unjust to them. Very often they are ignorantly disparaged. Professor Ritschl, I am told, envies the English schools their Latin verse, and he is no bad judge of what is useful for knowing Latin. But the close appropriation of the models, which is necessary for good Latin or Greek composition, not only conduces to accurate verbal scholarship; it may beget, besides, an intimate sense of those models, which makes us sharers of their spirit and power; and this is of the essence of true *Alterthumswissenschaft*. Herein lies the reason for giving boys more of Latin composition than of Greek, superior though the Greek literature be to the Latin; but the power of the Latin classic is in *character*, that of the Greek is in *beauty;* and character is capable of being taught, learnt, and assimilated; beauty hardly; and it is for enabling us to learn and catch some *power* of antiquity, that Greek or Latin composition is most to be valued. Who shall say what share the turning over and over in their mind, and masticating, so to speak, in early life as models for their Latin verse, such things as Virgil's

"Disce, puer, virtutem ex me verumque laborem"—

or Horace's

"Fortuna sævo læta negotio"—

has not had in forming the high spirit of the upper class in France and England, the two countries where Latin verse has most ruled the schools, and the two countries which most have had, or have, a high upper class and a high upper class spirit? This is no doubt to be considered when we are judging the worth of the old school training. But, in the first place, dignity and a high spirit is not all or half all that is to be got out of *Alterthumswissenschaft*. What else is to be got out of it—the love of the things of the mind, the flexibility, the spiritual moderation—is for our present time and needs still more precious, and our upper class suffers greatly by not

having got it. In the second place, though I do not deny that there are persons with such eminent aptitudes for Latin and Greek composition that they may be brought in contact with the spirit and power of *Alterthumswissenschaft*, and thus with vital knowledge, through them—as neither do I deny that there are persons with such eminent aptitudes for grammatical and philological studies, that they may be brought in contact with vital knowledge through *them*—nevertheless, I am convinced that of the hundreds whom our present system tries without distinction to bring into contact with *Alterthumswissenschaft* through composition and philology almost alone, the immense majority would have a far better chance of being brought into vital contact with it through literature, by treating the study of Greek and Latin as we treat our French, or Italian, or German studies. In other words, the number of persons with aptitudes for being carried to vital knowledge by the literary, or historical, or philosophical, or artistic sense—to each of which senses we give a chance by treating Greek and Latin as literature, and not as mere scholarship—is infinitely greater than the number of those whose aptitudes are for composition and philology.*

The ancient languages to be more studied as *literature*.

I cannot help thinking, therefore, that the modern spirit will deprive Latin and Greek composition and verbal scholarship of their present universal and preponderant application in our secondary schools, and will make them, as practised on their present high scale, *Privatstudien*, as the Germans say, for boys with an eminent aptitude for them. For the mass of boys the Latin and Greek composition will be limited, as we now limit our French, Italian, and German composition, to the exercises of translation auxiliary to acquiring any language soundly; and the verbal scholarship will be limited to learning the elementary grammar and common forms and laws of the language with a thoroughness which cannot be too exact, and which may easily be more exact than that which we now attain with our much more ambitious grammatical studies. A far greater quantity of Latin and Greek literature might, with the time thus saved, be read, and in a far more interesting manner. With the Latin and Greek classics, too, might be joined, as a part of the literary and humanistic course for those whose aptitude is in this direction, a great deal more of the classics of the chief modern languages than we have time for with our present system. We have still to make the mother tongue and its literature a part of the school course; foreign nations have done this, and we shall do it; but neither foreign nations nor we have yet quite learnt how to deal, for school purposes, with modern foreign languages. The great notion is to teach them for speaking purposes, with a view to practical convenience. This notion clearly belongs to what I

And the modern languages likewise.

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* Since the above remarks were written they have received powerful corroboration from the eminent authority of Mr. Mill, in his inaugural address at St. Andrews. The difference of my conclusions on one or two points from Mr. Mill's only makes the general coincidence of view more conspicuous; Mr. Mill having been conducted to this view by independent reflection, and I by observation of the foreign schools and of the movement of ideas on the Continent.

Mr. Farrar's very interesting lecture has still more recently come to show us this movement of ideas extending itself to the schools of England, and to distinguished teachers in the most distinguished of these schools.

have called the commercial theory of education, and not the liberal theory; and the faultiness of the commercial theory is well seen by examining this notion and its fruits. Mr. Marsh, the well-known author of the *History of the English Language*, who has passed his life in diplomacy and is himself at once a *savant* and a linguist, told me he had been much struck by remarking how, in general, the accomplishment of speaking foreign languages tends to strain the mind, and to make it superficial and averse to going deep in anything. He instanced the young diplomatists of the new school, who, he said, could rattle along in two or three languages, but could do nothing else. Perhaps in old times the young diplomatists could neither do that nor anything else, so in their case there may be now a gain; but there is great truth in Mr. Marsh's remark that the speaking several languages tends to make the thought thin and shallow, and so far from in itself carrying us to vital knowledge, needs a compensating force to prevent it carrying us away from it. But the true aim of schools and instruction is to develope the powers of our mind and to give us access to vital knowledge. Again, if the speaking of foreign languages is a prime school aim, this aim is clearly best reached by sending a boy to a foreign school. Great numbers of English parents, accordingly, who from their own want of culture are particularly prone to the more obvious theory of education—the commercial one—send their boys abroad to be educated. Yet the basis of character and aptitudes proper for living and working in any country is no doubt best formed by being reared in that country, and passing the ductile and susceptible time of boyhood there; and in this case Solomon's saying applies admirably: "*As a bird that wandereth from her "nest, so is a man that wandereth from his place.*" That, therefore, can hardly be a prime school aim, which to be duly reached requires from the scholar an almost irreparable sacrifice. So the learning to speak foreign languages, showy as the accomplishment always is, and useful as it often is, must be regarded as a quite secondary and subordinate school aim. Something of it may be naturally got in connexion with learning the languages; and above all, the instructor's precept and practice in pronunciation should be sound, not, as in our old way of teaching these languages through incompetent English masters it too often was, utterly barbarous and misleading; but all this part is to be perfected elsewhere, and is not to be looked upon as true school-business. It is as literature, and as opening fresh roads into knowledge, that the modern foreign languages, like the ancient, are truly school-business; and far more ought to be done with them, on this view of their use, than has ever been done yet.

Summing up of conclusions.

To sum up, then, the conclusions to which these remarks lead. The ideal of a general, liberal training is, to carry us to a knowledge of ourselves and the world. We are called to this knowledge by special aptitudes which are born with us; the grand thing in teaching is to have faith that some aptitudes of this kind everyone has. This one's special aptitudes are for knowing men—the study of the humanities; that one's special aptitudes are for knowing the world

—the study of nature. The circle of knowledge comprehends both, and we should all have some notion, at any rate, of the whole circle of knowledge. The rejection of the humanities by the realists, the rejection of the study of nature by the humanists, are alike ignorant. He whose aptitudes carry him to the study of nature should have some notion of the humanities; he whose aptitudes carry him to the humanities should have some notion of the phenomena and laws of nature. Evidently, therefore, the beginnings of a liberal culture should be the same for both. The mother tongue, the elements of Latin and of the chief modern languages, the elements of history, of arithmetic and geometry, of geography, and of the knowledge of nature, should be the studies of the lower classes in all secondary schools, and should be the same for all boys at this stage. So far, therefore, there is no reason for a division of schools. But then comes a *bifurcation*, according to the boy's aptitudes and aims. Either the study of the humanities or the study of nature is henceforth to be the predominating part of his instruction. Evidently there are some advantages in making one school include those who follow both these studies. It is the more economical arrangement; and when the humanistic and the real studies are in the same school, there is less likelihood of the social stamp put on the boy following the one of them, being different from that put on a boy following the other. Still the *bifurcation* within one school, as practised in France, did not answer. But I think this was because the character of the one school remained so overwhelmingly humanistic, because the humanist body of teachers was in general much superior to the realist body, and because the claims of the humanities were allowed to pursue a boy so jealously into his *real* studies. In my opinion, a clever *Realschüler*, who has gone properly through the general grounding of the lower classes, is likely to develope the greater taste for the humanities the more he is suffered to follow his *real* studies without let or stint. The ideal place of instruction would be, I think, one where in the upper classes (the instruction in the lower classes having been the same for all scholars) both humanistic and *real* studies were as judiciously prosecuted, with as good teaching and with as generous a consideration for the main aptitudes of the pupil, as the different branches of humanistic study are now prosecuted in the best German *Gymnasien;* where an attempt is certainly made, by exempting a pupil from lessons not in the direction of his aptitudes, and by encouraging and guiding him to develope these through *Privatstudien*, to break through that Procrustean routine which, after a certain point, is a bane to great schools. There should, after a certain point, be no cast-iron course for all scholars, either in humanistic or naturalistic studies. According to his aptitude, the pupil should be suffered to follow principally one branch of either of the two lines of study; and, above all, to interchange the lines occasionally, following, on the line which is not his own line, such lessons as have yet some connexion with his own line, or, from any cause whatever, some attraction for him. He cannot so well do this if the *Gymnasium* and the *Realschule* are two

totally separate schools. His doing it at all, however, is, it will be said, only an ideal. True, but it is an ideal which the modern spirit is casting about to realize. To realize it fully, the main thing needful is, first, a clear central conception of what one can and should do by instruction. It is, secondly, a body of teachers, in all the branches of each of the two main lines of study, thoroughly masters of their business, and of whom every man shall be set to teach that branch which he has thoroughly mastered, and shall not be allowed to teach any that he has not.

Passage from secondary to superior instruction. Special schools and universities.

The secondary school has essentially for its object a general, liberal culture; whether this culture is chiefly reached through the group of aptitudes which carry us to the humanities, or through the group of aptitudes which carry us to the world of nature. It is a mistake to make the secondary school a direct professional school, though a boy's aims in life and his future profession will naturally determine, in the absence of an overpowering bent, the group of aptitudes he will seek to develope. It is the function of the special school to give a professional direction to what a boy has learnt at the secondary school, at the same time that it makes his knowledge, as far as possible, systematic—developes it into science. It is the function of the University to develope into science the knowledge a boy brings with him from the secondary school, at the same time that it directs him towards the profession in which his knowledge may most naturally be exercised. Thus, in the University, the idea of science is primary, that of the profession secondary; in the special school, the idea of the profession is primary, that of science, secondary. Our English special schools have yet to be instituted, and our English universities do not perform the function of a University, as that function is above laid down. Still we have, like Germany, great and famous universities, and those universities are, as in Germany, in immediate connexion with our chief secondary schools. It will be well, therefore, to complete my sketch of the Prussian school system by a sketch of the university system with which it is co-ordered.

Universities of Prussia.

Prussia has now six complete universities, with all the four faculties of theology, law, medicine, and philosophy; and two incomplete universities, with only the faculties of theology and philosophy. The complete universities are Berlin, Bonn, Breslau, Greifswald, Halle, and Königsberg; the incomplete ones are Münster and Braunsberg. In both of these last the faculty of theology is Catholic.

Proportion of university students to population.

These eight Prussian universities had, in 1864, 6,362 students and 600 professors. But this number does not represent the number of Prussians who come under university instruction, because many Prussians go to German universities out of Prussia, such as Heidelberg, Göttingen, Leipzig, Jena. There is very free circulation of the German students through the universities of the fatherland; and to estimate the proportion, in any German State, who come under superior instruction, the fairest way is to take the proportion which the whole number of students in Germany bears to the whole population. For else, while we get for Prussia but about 1 student to every

2,800 inhabitants, we shall get for Baden, and for the three Saxon duchies, Weimar, Coburg, and Altenburg, about 1 student to every 1,100 inhabitants; yet it is not that in these territories more of the population go to the University than in Prussia, but Baden has the university of Heidelberg, and the three Saxon duchies have in common the University of Jena, and to these two universities students from all parts of Germany come. Taking, therefore, the whole of Germany exclusive of the non-German States of Austria, we get about one matriculated student for every 2,600 of population; and this proportion is probably pretty near the truth for Prussia, and for most of the single States. In England the proportion is about one matriculated student to every 5,800 of population.

The universities of the several German States differ in many points of detail, but in their main system and regulations they are alike. I shall continue, in speaking of universities, to have Prussia in immediate view; but the Commissioners will understand that what I say of the Prussian university system may be applied in general to that of all Germany.

German universities are State establishments.

The German university is a State establishment, and is maintained, so far as its own resources fall short, by the State. A university's own resources are both the property it has and the fees it levies. The two most important of the Prussian universities, Berlin with its 2,500 students and Bonn with its 1,000, date from this century, and foundations of this century are seldom very rich in property. For the year 1864, the income of the University of Berlin was 196,787 thalers (29,518*l.*); of this sum, the real and funded property of the university produced 161 thalers, fees produced 7,557 thalers. The State gave all the rest—189,069 thalers (about 28,842*l.*). And the State which does this is the most frugal and economical State in Europe.*

The Minister of Public Instruction appoints the professors of a university, the Academical Senate having the right of proposing names for his acceptance, and he has also his representative in each university—the *curator*—who acts as plenipotentiary for the State, and whose business it is to see to the observance of the laws and regulations which concern the universities. Thus, for instance, a full professor (*professor ordinarius*) is bound by regulation to give throughout the *Semester*, or half year, at least two free lectures a week on his subject; if he tried to charge fees for them, it would be the curator's business to interfere. And the university authorities cannot make new regulations for the government of the university without obtaining for them the sanction of the minister and of Parliament. Still the university authorities practically work, in Germany just as much as in this country, their own university;

* For more complete details respecting the University of Berlin see the appendix to this Report. I have there given, also, a list of all the universities of Germany, with the numbers of their students and teachers. For valuable information on this subject, and for excellently composed tables in which that information is exhibited, I am indebted to M. Minssen's clear and useful *Étude sur l'Instruction secondaire et supérieure en Allemagne* (Paris, Librairie Internationale, 1866). M. Minssen was sent by M. Duruy to see the universities and gymnasiums of Germany, and was in that country at the same time that I was.

the real direction of the university is in their hands, and not, as in France, in those of the minister.

These university authorities are the following. First comes the rector, or in, cases where the sovereign is the titular rector, as at Halle and Jena, the prorector, who answers to our vice-chancellor, only he is elected for one year only, instead of four. His electors are the full professors. He is the visible head of the university, and is charged with its discipline. Like our vice-chancellor he has an assessor or judge who sits with him whenever there is a question of inflicting fines, or whenever one of the parties appearing before him is not a member of the university. The Academical Senate is also chosen by the full professors, and for one year, its members consisting of the actual rector (or prorector), the outgoing rector, and a full professor of each faculty. In some universities all the full professors are members of the Academical Senate. The rector is president, and the internal affairs of the university are brought before it for its discussion and regulation of them. University authorities.

Next come the faculties. The faculties in nearly all German universities are four in number;* theology, law, medicine and philosophy. Philosophy embraces the humanities, and the mathematical and natural sciences. As a university authority, a faculty consists only of its full professors, headed by the dean, whom these professors elect for one year. It is the business of the faculty thus composed to see that the students attend regularly the courses of lectures for which they are entered, to summon defaulters before it, to reprimand them, and to inflict on them, if it think proper, a slight penalty.

The last university authority to be mentioned is the *quæstor*. He has to collect from the students the fees for the courses for which they have entered themselves, and to pay those fees to the professors to whom they are due, a small deduction being made for the quæstor's salary and for the university chest.

And now to take the university, not as an administrative but as a teaching body. Of the university, considered in this capacity, the *faculty* is a very different thing from the limited faculty above described. The university faculty, as a teaching body, comprehends not only all the full professors of that faculty, but all its professors extraordinary, or assistant professors and all its *Privatdocenten*. The dean of faculty ascertains from all the full professors, all the professors extraordinary, and all the *Privatdocenten* of his faculty, what subject each of them proposes to treat in the coming *Semester;* there is perfect liberty of choice for each lecturer, but by consent among themselves they so co-order their teaching that the whole field of instruction proper to their faculty may be completely covered. Then the dean calls together the full professors, who make the administrative faculty; and the programme of lectures is by them drawn up from the data collected by the dean, and is promulgated by their authority. University teachers.

* In one or two universities there is a separate faculty for political economy; in general this science is comprehended in the faculty of philosophy.

1. Full professors.

All full professors must have the degree of doctor in their faculty. Each of them is named for a special branch of the instruction of his faculty; and in this branch he is bound, as I have said, to give at least two public lectures a week without charging fees. He receives from the State a fixed salary which is sometimes as much as 350*l.* or even 400*l.* a year; he has also a share in the examination fees, and he has the fees for what lectures he gives besides his public ones. The regular number of full professors in each university is limited, but the State can always, if it thinks fit, nominate an eminent man as full professor in a faculty, even though the faculty may have its complement of full professors; and the State then pays him the same salary as the other full professors. Both from the consideration which attaches to the post and from its emolument, a full professor's place is in Germany the prize of the career of public instruction, and no schoolmaster's place can compare with it. At Heidelberg several professors have an income, from fixed salary and fees together, of 1,000*l.* a year, and one has an income of 1,500*l.*

2. Assistant professors.

The professors extraordinary, or assistant professors, are also named by the State, but they have not in all cases a fixed salary. Their main dependence is on fees paid by those who come to their lectures. They are in general taken from the most distinguished of the *Privatdocenten*, and they rise through the post of professor extraordinary to that of full professor.

3. *Privatdocenten.*

Other countries have full professors and professors extraordinary. France, for instance, has her *professeurs titulaires* and her *professeurs suppléants*, but the *Privatdocent* is peculiar to Germany, and is the great source of vigour and renovation to her superior instruction. Sometimes he gives private lessons, like the private tutors of our universities; these lessons have the title of *Privatissima;* but this is not his main business. His main business is as unlike the sterile business of our private tutors as possible. The *Privatdocent* is an assistant to the professorate; he is free to use, when the professors do not occupy them, the university lecture rooms, he gives lectures like the professors, and his lectures count as professor's lectures for those who attend them. His appointment is on this wise. A distinguished student applies to be made *Privatdocent* in a faculty. He produces certain certificates and performs certain exercises before two delegates named by the faculty, and this is called his *Habilitation.* If he passes, the faculty names him *Privatdocent.* The authorization of the Minister is also requisite for him, but this follows his nomination by the faculty as a matter of course. He is then free to lecture on any of the matters proper to his faculty. He is on his probation, he receives no salary whatever, and depends entirely on his lectures; he has, therefore, every motive to exert himself. In general, as I have said, the professors and *Privatdocenten* arrange together to parcel out the field of instruction between them, and one supplements the other's teaching; still a *Privatdocent* may, if he likes, lecture on just the same subject that a professor is lecturing on; there is absolute liberty in this respect. The one precaution taken against undue competition is, that a *Privatdocent* lecturing on a professor's subject is not allowed to

charge lower fees than the professor. It does honour to the disinterested spirit in which science is pursued in Germany, that with these temptations to competition, the relations between the professors and the *Privatdocenten* are in general excellent; the distinguished professor encourages the rising *Privatdocent*, and the *Privatdocent* seeks to make his teaching serve science, not his own vanity. But it is evident how the neighbourhood of a rising young *Privatdocent* must tend to keep a professor up to the mark, and hinder him from getting sleepy and lazy; if he gets sleepy and lazy, his lecture-room is deserted. The *Privatdocent*, again, has the standard of eminent men before his eyes, and everything stimulates him to come up to it.

In the faculty of philosophy at Berlin the number of *Privatdocenten* is about exactly the same as the number of full professors. There are 28 full professors and 29 *Privatdocenten*. The professors extraordinary are more numerous than either. They are 33 in number. The whole number of teachers in the University of Berlin is 183.

Students.

Now I come to the students. The university course in theology, law, and philosophy, takes three years; in medicine it takes four or five. A student in his *triennium* often visits one or two universities, seldom more. Lachmann (to take an eminent instance) first went for half-a-year to Leipzig to hear Hermann; then he passed on to Göttingen, where he afterwards got his *Habilitation*. To become a member of a university, the student has to be entered on the university register (*Matrikel*), and then on the register of the faculty in which he means to follow lectures; for inscription on the university register the production of the school-leaving certificate (*Maturitätszeugniss*) of which I have already said so much, is indispensable. You may get leave to attend lectures without being a member of the university, and without any school certificate; but such attendance counts nothing for any purpose for which a university course is by law or official rule required. The university entrance fee is about 18*s*. The matriculating student signs an engagement to observe the laws and regulations of the university. The penalties for violating them are enforced by the rector. These penalties are, according to the nature of the offence, reprimand; fine; imprisonment for a period not exceeding one month in the university *carcer; consilium abeundi*, or dismissal from the particular university to which the student belongs, but with liberty to enter at another; and finally, *Relegation*, or absolute expulsion, notice being sent to the other universities, which then may not admit the student expelled.

Fees.

The lecture fees range from 16*s*. to 1*l*. 14*s*. for every course which is not a public and gratuitous one. They are somewhat higher at Berlin than in most German universities. In the faculty of medicine they are highest; they go as high as 1*l*. 14*s*. a *Semester* for a course of about five hours a week. A course of the same length in theology or philosophy costs at Berlin about 17*s*. a *Semester*. The fees are collected, as I have said, by the university quæstor, and they must be paid in advance. But every professor has the power to admit poor auditors to his lectures without fee,

and often he does so. Poor students are also, by a humane arrangement, suffered to attend lectures on credit, and afterwards, when they enter the public service—which in Prussia means not only what we in England call the public service, but the learned professions as well—their lecture fees are recovered by a deduction from their salary. Each university has besides, for the benefit of poor scholars, a number of exhibitions ranging from 12*l.* to 60*l.* a year; and it is common to allow the holders of school exhibitions, which are of smaller amount, and range from 6*l.* to 30*l.* a year, to retain them at the university.

Certificates of attendance at lectures.

Certificates of having followed certain courses of lectures are required both for the university degree and for the subsequent examination for a public career (*Staatsprüfung*) which almost every university student has in view. It is said that the professors whose lectures are very numerously attended have difficulty in ascertaining who is there and who is not, and that they give the certificates with too much laxity. In general, however, it is certain that a student who has his way to make and who is worth anything will attend regularly the lectures for which he has entered himself and paid his money. There are of course many idlers; the proportion of students in a German university who really work I have heard estimated at one third; certainly it is larger than in the English universities. But the pressure put upon them in the way of compulsion and university examinations is much less than with us; the paramount university aim in Germany is to encourage a love of study and science for their own sakes; and the professors, very unlike our college tutors, are constantly warning their pupils against *Brodstudien*, studies pursued with a view to examinations and posts. The examinations within the university course itself are far fewer and less important in Germany than in England. It is Austria, a country which believes in the things of the mind as little as we do, which is the great country for university examinations. There they are applied with a mechanical faith much like ours, and come as often as once a month; but the general intellectual life of the Austrian universities is lower, though Vienna and Prague are good medical schools, than that of any other universities of Germany. "*Le pays à examens, l'Autriche*"—exclaims an eminent French professor, M. Laboulaye, who has carefully studied the German university system with a view to reforming that of France—"*Le pays à examens, l'Autriche, est précisément celui dans lequel on ne travaille pas*;" and every competent authority in Germany will confirm what M. Laboulaye says. I do not say that in countries like Austria and England, where there is next to no real love for the things of the mind, examinations may not be a protection from something worse.* All I say is that a love for the things of the mind is what we want, and that examinations will never give it.

Degrees.

Each faculty in a German university examines for degrees in that faculty and confers them. The *Maturitätszeugniss* which the

* Although I am no very ardent lover of examinations, I am inclined to think the German universities might with advantage make a somewhat greater use of them.

student brings with him from school answers to our grade of bachelor of arts. The degree of licentiate, answering to our degree of master, is only given in theology and philosophy, and is not often sought for. The great faculty degree is the degree of doctor. For this a certificate of university studies, an oral examination, and a written dissertation, are required. The dissertation is in Latin or German, and is usually published. A doctor's degree in philosophy costs 17*l.* at Berlin; there are faculties and universities in which a doctor's degree costs as much as 22*l.* 10*s.* A poor student who passes a brilliant examination has sometimes his degree given him without fees. I think I have already said that the degree of doctor is given much more easily in some German universities than in others. But in none is the degree examination in itself such as to make it what the degree examination is with us, the grand final cause of the university life. "*Der Zweck des Lebens ist das Leben selbst*," says the German poet; and this is certainly true, in Germany, of the university life.

The *Staatsprüfung*.

The *Staatsprüfung*, however, supplies a bracing examination test; but this examination falls outside the sphere of the university itself. As I have again and again begged the Commissioners to remark, the examination test is never used in Prussia as sufficient in itself; it is only used to make the assurance of a really good education doubly sure; the really good education is regarded as the main assurance, and no one who has not had this may present himself for the *Staatsprüfung*. The student who leaves a university receives from the rector a certificate mentioning what lectures he has attended, and what the character of his university career has been. With this certificate and with the leaving certificate of his school, the future civil servant, clergyman, lawyer, or doctor, presents himself before an examining commission (*Prüfungscommission*) such as I have described in an earlier part of this Report. He is then examined, having three or four days of paper work, and six or eight hours of *vivâ voce*. For lawyers and for clergymen there is a double examination, the second coming three years after the first.

Character of the German university system.

Such, sketched in the briefest possible outline, is the system of the German universities. *Lehrfreiheit* and *Lernfreiheit*, liberty for the teacher and liberty for the learner; and *Wissenschaft*, science, knowledge systematically pursued and prized in and for itself, are the fundamental ideas of that system. The French, with their ministerial programmes for superior instruction, and their ministerial authorizations required for any one who wants to give a course of public lectures—authorizations which are by no means a matter of form—are naturally most struck with the liberty of the German universities, and it is in liberty that they have most need to borrow from them. To us, ministerial programmes and ministerial authorizations are unknown; our university system is a routine, indeed, but it is our want of science, not our want of liberty, which makes it a routine. It is in science that we have most need to borrow from the German universities. The French university has no liberty, and the English universities have no science; the German universities have both.

IV.—SWITZERLAND.

Resemblance of the Swiss schools to those of Germany.

I have already given the Commissioners so much to read that I am unwilling to occupy them for more than a short time longer, and indeed what is most important in the Swiss secondary schools is so closely akin to what is to be found in Germany, that the sketch I have given of the higher schools of Prussia might serve in the main for those of the most notable Swiss cantons also. But I will take the opportunity which Switzerland gives me to notice the secondary schools, which in Germany I have chiefly noticed by their classical side, by that side of them which is not classical, and also in connexion with the primary schools.

The Zurich schools to be taken as representatives of those of Switzerland.

Nowhere is the continuity between the primary and the higher schools so complete as in Canton Zurich, which I therefore will take as a representative of Switzerland, in the same way that I took Prussia as the representative of Germany. Zurich is, no doubt, an eminently favourable representative to take; it is on the whole the best provided with schools of all the Swiss cantons. Its schools however are scarcely better, even as a whole, than those of Canton Aargau and Canton Basle; in the classical school, Canton Basle probably surpasses Canton Zurich. Even in cantons which are generally spoken of as backward, Lucern for instance, my astonishment was, and the astonishment of every Englishman accustomed to the unhappy deficiencies of our own school system must be, not to find the Lucern schools no better than they are, but to find them so good as they are. Zurich therefore, though a very favourable specimen, is not unique, is still representative; and every day, as the great movement of education goes on which has for the last thirty years made the force of Switzerland, the cantons which are behind Zurich are more and more exerting themselves to emulate her example.

Canton Zurich has about 260,000 inhabitants, the immense majority of whom are of German stock and Protestants. Nearly a third of the whole public expenditure of the canton is directed to education, and one in five of the population are in school.

Communal schools. Common popular schools.

The schools in the canton are communal, cantonal or federal. The system begins with the communal school. By the school law of the canton, instruction is obligatory on all children between the ages of six and sixteen. The communal day-school takes the child at six. It is a school of six classes, three of them *Elementarclassen*, and three of them *Realclassen;* each class takes the child a year to pass through it. By the time he has passed through the communal day-school he has therefore completed his 12th year. He has still three years more of obligatory instruction before he arrives at his confirmation; this, which answers to the *première communion* of the Catholics, being for Zurich Protestants the epoch to which the term of obligatory school-attendance is reckoned, and this epoch being reached when the child is sixteen. If he does not pass from the communal day-school into a school of a higher order, two courses are open to him. Either he attends the *Ergänzungsschule*,

or finishing school, which is in fact a department of the communal day-school for his benefit and that of others like him, with eight hours instruction a week, the eight being generally taken in two mornings; or, if he cannot spare time for even so much as this, he becomes a *Sing-und Unterweisungsschüler.* He is a pupil of the *Singschule,* to keep up by one hour's practice in the week that knowledge of church music and singing which in Protestant Germany is thought so important, and he is a pupil, for *Unterweisung* or religious instruction, of the pastor of the place, who has him for an hour and a half in the week to keep up his religious instruction preparatory to his confirmation. The instruction comes to much the same in amount as the instruction of our Sunday schools. One of these two courses is obligatory, from the age of 13 to the age of 16, upon every child who does not go to some higher school.

I have seen many of the Swiss primary day-schools, and think them in general better than even the inspected schools of this class with us now are. The programme of work for them is fixed by the Educational Council of the canton, and embraces religious instruction, the mother tongue, arithmetic and geometry, the elements of natural philosophy, history and geography, singing, handwriting, drawing, gymnastics; and, for girls, needlework. Needlework is taught in the day-school only to the three elementary classes; for girls in the *real* classes of the day-school, and for girls in the *Ergänzungsschule,* there are special schools, *weibliche Arbeitschulen** to which they have to go for their instruction in needlework. The needlework of girls in the elementry schools of Germany and Switzerland is very much better than that of girls in ours. The *Arbeitschulen* are of course taught by women, but the immense majority of the Zurich day-schools are mixed schools, and taught by men. The canton has a Normal school at Küssnacht to train its teachers, who have of course to pass an examination and to obtain a certificate.

From seven to thirteen, therefore, every child in Canton Zurich has the instruction of such a day-school as I have described. In 1864 there were 365 day-schools in the canton, with 515 departments under separate teachers (*Einzelnschulen*). The moment the number of scholars in a school exceeds 100, the law compels the school to have a second teacher and a second school room, but the Education Council may order this relief when there are more than 80 scholars, and, in fact, as soon even as there are more than 40 or 50, the commune of its own motion frequently bestows it; providing, if not a second schoolmaster, at least a trained assistant with the title of *Adjunct.* The school hours in the day-school are from 18 hours a week in the lowest classes to 27 hours a week in the highest, and there are eight weeks of holidays in the year.

I have said that every child in Canton Zurich has, from the age of seven to that of 13, the instruction of such a day school as

* There were, in 1864, 322 *Arbeitschulen* of this kind in Canton Zurich.

I have described. Not that every child is obliged to go to the communal day-school; but at the beginning of every school year the pastor of the commune furnishes a list of all the children of the commune who have reached the legal school age, the school committee of the commune issues a notice that all such children must be brought to school, and if any of them are taught at home or sent to private schools their parents must satisfy the school committee that they receive an instruction at least equal to that of the communal day-school, and meanwhile must pay to this school the fee for them just the same as if they attended. This being so, and the public day-schools being really good, few children go elsewhere, and one finds all classes of society mixed in them. In the school district of Zurich, comprising the city itself and its environs, there were in 1864 only two private schools for boys, with forty boys of school age between them.

Obligatory attendance.

The 365 communal day-schools of Canton Zurich had, in 1864, 25,797 scholars between the ages of 7 and 13. The number of school absences in the year was 13.12 per scholar. But school absences are distinguished into *verantwortete*, those of which a satisfactory explanation (illness, death in the family, &c.) is given, and *strafbare*, those which are unallowed and punishable. The latter were only 1.04 per scholar. In different places the mode of dealing with punishable absences differs. In the town of Zurich the school authority warns the offending parent or guardian after three punishable absences, cites him after three more, fines him after three more. This applies to absences from the day-school; for absences from the *Ergänzungsschule* or *Singschule* the warning is after the second punishable absence, the citation after the fourth, the fine after the sixth. But in all cases the law which makes non-attendance penal is enforced, the Education Council repaying to the local school authorities the costs of any proceedings against defaulters. The same authorities are also empowered to see that the half-timers, as we might call them, of their locality, the pupils of the *Ergänzungschule*, are not overtaxed out of school hours by their employers, or rendered unfit for the school work still required of them.

Of children between 13 and 16, 10,441 attended in 1864 the *Ergänzungschulen* of Canton Zurich, and 11,428 were only *Sing-und Unterweisungsschüler*. It is noteworthy that almost one half of the scholars whose day-school obligation had ended took the greater rather than the less amount of schooling assigned for their last three years of educational non-age. The law fixes three francs a year as the school fee* of a day scholar, and a franc and a half as the fee of all scholars not day scholars. No distinction is made between a scholar of the *Ergänzungschule* and a scholar of the *Singschule*. This of course constitutes an inducement to the parent to send his son if he can to the finishing school rather than the singing school, to get as much as he can for his school money.

School authorities. The school-partnership.

I have several times spoken of the school authorities. These form a closely connected series. The authority nearest to the

* The local school authority may increase this up to double the amount. In the great communal day-school of Zurich, with nearly 1,400 scholars, and with 15 or 16 teachers in each of its two departments, the school fee is six francs a year.

elementary school (*Allgemeine Volksschule*) is the *Schulgenossenschaft*, or school partnership, composed of the school's immediate tributaries. Each school has its own *Schulgenossenschaft*, to abridge or to extend the limits of which, or to unite it with another *Schulgenossenschaft*, the intervention of the Council of State, the high governing body of the canton, is requisite. Each school has likewise its own *Schulfond*, or school fund, and *Schulverwalter*, or steward of this fund. The school partnership elects its steward, who is then its representative in the management of the school finances. It also elects, if it pleases, its schoolmaster, fixes, within the limits left to it by the law, the rate of school fee, and decides what poor scholars shall be admitted gratuitously, and what at reduced rates. Pauper children are paid for out of the poor's fund of the whole commune of which the *Schulgenossenschaft* forms a part.* The school-partnership is charged with providing, fitting, maintaining, and warming the school premises, with the payment of 8*l.* a year towards the schoolmaster's salary, and with finding him a house, ground, and firing, or an equivalent in money. The schoolmaster takes half the school fees; the other half goes into the school chest. If the schoolmaster's half of the school fees, with his fixed salary from the school partnership, does not reach a certain minimum, the State, if necessary, makes his income up to that minimum. But the school partnership, or the whole commune, often provides out of its own resources schoolmasters' salaries much above the legal minimum; in the more important communes this is more particularly the case. In the town of Zurich the 15 teachers of the boy's division of the elementary school all receive an income from the commune of from 80*l.* to 104*l.* a year. In the small country communes 40*l.* is about the average of a teacher's salary. The revenues from the *Schulfond*, which consists of the landed or funded property with which the school is endowed, of settlement dues paid by all new settlers in the commune, and of dues paid on all marriages in the commune, are, with the proceeds of school fines and of half the school fees, with what the school partnership raises among its own members and with what the State grants, the means of providing for the yearly support of the school. In the town of Zurich the commune rates itself to make up the sum it requires for its schools; in the country, the school partnerships raise by voluntary contributions among their members the amount they need. The *Schulfonds* of the elementary schools of Canton Zurich amount altogether to nearly 5,550,000 francs; to the yearly income from this the State adds about 300,000 francs, 35,000 francs for school buildings in poor communes, and 275,000 francs for teachers' salaries; for the rest of the expenditure on the elementary schools, school fees and the contributions of the local bodies provide.

* Though our English National schools date from George the Third's reign only, their constitution has a mediæval character. But in some parts of England the supporters of a Methodist day school afford a specimen of a genuine *Schulgenossenschaft*, providing, maintaining and managing the school they require for their own children. But they are not, as in Switzerland, co-ordered with a regular graduated series of school authorities; they have nothing between them and the Central Education Department in London.

The communal school committee.

The school partnership is not charged with the duty of superintending the discipline and teaching of its school. This duty belongs to the next authority in the series, to the school administration of the commune (*Gemeindsschulpflege*). This body represents the whole *Schulkreis*, or school circle, in which the school partnership falls; it represents the commune in fact, for the school circles of Canton Zurich coincide as a general rule with its communes. The canton has 162 school-circles, and 367 school partnerships. The school administration of the school circle or commune is a body of four or more members elected by the commune; the *Pfarrer*, or parson,* being *ex-officio*, their president. The other members are elected by universal suffrage, but no one under 25 may be on the *Schulpflege*, and two near relations or connexions may not be on it together. The meetings of this *Gemeindsschulpflege* are attended by all the teachers of the school circle, but they have a consultative voice only. Whenever the financial affairs of a school are under consideration by the *Schulpflege*, the steward representing the school partnership of that school attends. The duties of the communal *Schulpflege* are to see that in all the elementary schools of the *Gemeinde*, or commune, the school-law is properly obeyed, the teacher properly paid, the rules issued from time to time by the Educational Council of the canton properly followed, the teaching and discipline properly maintained. The members inspect by rotation the schools of their commune, and make a yearly report to the body next above them in the chain of school authorities,—the district school administration (*Bezirksschulpflege*).

The district school-committee.

Canton Zurich has eleven *Bezirke*, or districts. Each district, like each commune, has its *Schulpflege*. The district *Schulpflege* is composed of from 9 to 13 members, of whom three are chosen by the teachers of the *Bezirk*, the rest by the inhabitants of the district by universal suffrage. The members choose their own president and secretary. This higher *Schulpflege* sees that the communal *Schulpflege* properly fulfils its functions, that the law and the Education Council's rules are observed, that the children are sent regularly to school, and the school premises kept in good condition. Plans for new school buildings have to be submitted to this *Schulpflege* for approval, with appeal from its decision to the Educational Council. It names each of its members visitor (*Visitator*) for certain schools for a certain period; the visitor has to visit twice a year each of the schools assigned to him, to be present at the yearly examination by which in every school the pupils pass from one class to another, and to report to his

* In Canton Geneva the lay tendencies of modern democracy have so far prevailed that the pastor, or the curé, is not *ex officio* a member of the communal school committee; but all the communal schools have a dogmatic religious instruction, Catholic or Protestant. Many people in England seem to have a notion that a State system of education must of necessity be undenominational and secular. So far is this from being the case, that in all the countries to which this Report relates—France, Italy, Germany, and Switzerland—there is a State system of education and that system is both denominational and religious. Only the different denominations are not suffered to persecute one another.

Schulpflege. The district *Schulpflege* itself reports annually to the Education Council.

A small allowance of from three to six francs is made to the visitors of this *Schulpflege* for days on which they are actually employed in inspecting, and the school partnerships generally pay their stewards; with these exceptions, all the functions I have been describing are performed gratuitously.

The supreme authority, to which we now come, is the Education Council (*Erziehungsrath*). This represents the State. The Director of Education for the canton, who is president of the Education Council, is a member of the government of the canton, the Council of State. The Education Council has six members besides its president. Four of the six are chosen by the Great Council of the canton, that is, by universal suffrage; two are chosen by the School Synod, a body which consists of all the teachers of the canton, those of the higher schools as well as those of the popular schools. One teacher elected must be chosen from among the masters of the higher schools, the other from among those of the popular schools. The members of this Council are elected for four years, and half of them go out every two years; the other bodies I have been describing, and in general all public councils and committees in Canton Zurich, follow the like course. The superintendence and promotion of education, higher and lower, throughout the canton, is the business of the *Erziehungsrath*. It is the centre to which the reports of the district committees and the communal committees converge, and to which appeals are brought. It selects the commissions of superintendence for the cantonal schools, of which I have yet to speak; of each of these commissions the Director of Education is president, if he chooses; if not he, then some other members of the Education Council must be on each commission. The Council has also the power of ordering special inspections, and has a credit opened to it for this purpose; and it can suspend or interdict teachers. The Educatio Council.

Such is the series of authorities by which popular education in Canton Zurich is managed. The spirit in which they have been contrived, balanced, and organized, is, as the Commissioners will perceive, an intensely democratic, and an intensely local spirit; yet not insanely democratic, so that the idea of authority, nor insanely local, so that the idea of the State, shall be lost sight of.

But the obligatory three years of the finishing school or the singing school, are not the proper completion of the six years of the elementary or common popular school (*allgemeine Volksschule*), though they are a completion which the law accepts. But the proper completion is three years of the higher popular school (*höhere Volksschule*), or, as it is also called (the school terminology of Switzerland being somewhat different from that either of Germany or of France), the secondary school (*Secundarschule*). This is the *Mittelschule* of Germany, the *école élémentaire supérieure* of M. Guizot's law; but what is important to be observed is that it is still a school for the people, or *Volksschule*, and also a school which the public provides for them. The Council of State divides Higher popul schools (*Secu darschulen*).

the canton into *Secundarschulkreise*, school circles for the higher popular school, as the commune is the school circle for the common popular school. Of these *Secundarschulkreise* there are 57; the communes which compose each circle undertaking to maintain, with aid from the State, a secondary school in it. Each of these schools, too, has its *Schulfond;* the aggregate value of their property was in 1864, in round numbers, 470,000 francs. The school fee is 24 francs a year, but the school is bound to take one scholar in eight as a free scholar. The regular State grant to each of the 57 secondary schools is 42*l.* a year; this is increased, however, when the school is considerable enough to need more than one teacher. These teachers are trained, like the primary teachers, in the Normal school at Küssnacht, which has special lessons for them, and special certificates. In 1864 there were 74 teachers in the 57 secondary schools, and 2,398 scholars. The studies are in general the same as those of the primary school, but each branch is carried further, and French is added. The school has a three years' course, is held for about 28 hours in each week, and there are eight weeks of holidays in the year. It is evident, therefore, that this is no supplementary or half-time school, and can take no children who are not able to give their whole time to it. None are admitted who have not passed the examination which guards the exit from the primary school. Some special preparation for the business of agriculture or of trade is attempted in the secondary school.

The master of a secondary school gets on an average about 60*l.* a year, with house, ground, and firing. In the town of Zurich, where the secondary school, established, like the primary school, in a really splendid building, is excellent, his position is far better than this; the income of the five or six masters in the boys' department averaging there from 100*l.* to 110*l.* a year. I saw both departments of this school at work; the girls were more numerous than the boys, about 250 to the boys' 150. In both schools almost all the teaching is done by masters, nor, indeed, does the American preference of women as teachers get in general any sanction from the practice of the Continent.* I found in this Zurich girls' school ten masters employed and nine mistresses, but eight of the nine mistresses were for needlework. The children were of the class that one finds in the better British or Wesleyan schools in England, but they receive an instruction such as can be got in no British or Wesleyan school. I was particularly struck with the thorough way in which French was taught and learnt; the introduction of a foreign language as an obligatory part of the school course for every scholar, marks sufficiently the broad difference between the instruction in the Zurich secondary school and that in any British or Wesleyan school of ours; but the essential

* I may say that competent foreign observers who have studied the American schools report that, as a general rule, though something is to be learnt from them as to providing and maintaining schools, little or nothing is to be learnt from any of hem as to teaching. Nor is this the slightest reproach to America, which has nherited from us our preference of business to learning, and up to the present time has had a thousand reasons more than we for following this preference.

difference is in the abundance of teachers, and in their training and culture. Scholars who show eminent promise are passed on, with free posts if necessary, into the higher schools of the canton.

School-committees for secondary schools.

Every secondary school has its *Schulpflege*, of from seven to eleven members, two of whom are chosen by the *Bezirksschulpflege* of the district in which the school stands, the rest by the *Schulpflegen* of the communes which make up the secondary school circle. Their functions for the secondary school are like those of the communal *Schulpflege* for the primary school, and they report to the *Bezirksschulpflege*.

Cantonal schools. The *Gymnasium* and the *Industrieschule*. Their government.

The child who after completing his twelfth year goes neither to the finishing school (*Ergänzungsschule*), nor to the singing school, (*Singschule*), nor to the secondary school (*Secundarschule*), has still three years of *Schulzwang*, or obligation to be under instruction. But then he is of a class to do more than satisfy this obligation, and he goes to the gymnasium, where the school course lasts six years and a half, or to the *Industrieschule* (so at Zurich a Realschule is called) for five years and a half. These are *cantonal* schools, at the charge of the whole canton. Each of them has its own *Aufsichtscommission*, or commission of superintendence, of nine members, chosen, as I have said, by the Education Council. A delegate from this Commission attends and controls, as in Prussia, the yearly examinations at which leaving certificates are issued. The rectors of the cantonal schools are always members of the Commission of Superintendence, but they never, of course, represent it at examinations. Nor do they represent it at inspections, which the other members of the Commission perform by monthly rotation, the inspector having to visit each class and hear lessons given in it, in the course of the month. The rectors are nominated by the Council of State; the masters by the Education Council, reinforced by a certain number of members of the Commission of Superintendence for the school concerned. The Commission for the gymnasium and that for the *Industrieschule* have a joint meeting once a quarter, to ensure the harmonious working of the two schools.

Their course, fees, and instruction.

The instruction in the gymnasium is classical, and the passage to the University lies through it. It is in all important respects modelled on a German gymnasium such as those which I have so fully described in speaking of Prussia. It is divided into a lower gymnasium (*untere Gymnasium*), with a course of four years, and an upper gymnasium, (*obere Gymnasium*) with a course of two and a half years. In the lower gymnasium the school-fee is 30 francs a year. A boy passes the sixth year's examination of the elementary school and then enters at the bottom of the gymnasium. He cannot,—and this is the general rule in the Swiss and German schools,—be put above his age. If for any reason he does not come to the gymnasium till he is 14 or 15, he is still not placed by examination, but goes to the form which at 14 or 15 he would have reached had he entered the gymnasium in due course after 12. He is not admitted at all unless he is up to the work of the class to which his age assigns him. The graduation of the school programme, according to which the fit work is supposed to be assigned

for each age in fit proportions, is the ground for these rules, which seem to me to be on the whole judicious.

In the lower gymnasium the boys have religious instruction,* Latin, Greek, French and the mother tongue, history, geography and natural philosophy, arithmetic and mathematics, free-hand drawing, writing, singing, gymnastics and military exercising. In the upper gymnasium the fee is 48 francs a year. Here they of course carry the studies of the lower gymnasium further, and they add to them Hebrew besides, and logic. Enumerations of this kind are not in themselves very instructive; the Commissioners will get a clearer notion of the Zurich gymnasium from remarking that whereas in Prussia the *Volksschule* is, as I mentioned, not regarded as the right preparation for the gymnasium, the Swiss law expressly assigns to both sides, the classical as well as the *real*, of the cantonal school, an immediate connexion with the popular school. Then for scholars who enter above the second class of the lower gymnasium, and for all scholars in the upper gymnasium, Greek is not obligatory. But what is most noteworthy is that not only is no Latin or Greek verse done in the gymnasium at all, but no original Latin or Greek composition in prose is done there; a translation once a week,—into Greek one week and into Latin another,—is all the Greek and Latin composition done; and this translation is little more than a grammatical exercise. Composition in French is carried as far as the essay, and much beyond composition in the old classical languages. Greek, however, gets from 5 to 8 hours a week in every class of the gymnasium above the lowest, and Latin 10 hours in the lowest class, and from 6 to 8 hours in the rest. It is remarkable that in the highest class of the gymnasium Greek gets only five hours a week, an hour less than it gets in the *prima* of a Prussia gymnasium.

There are about 180 scholars in the Zurich gymnasium, and 14 of them in 1864 obtained the certificate of ripeness (*Zeugniss der Reife*) which here as in Germany is required for matriculation at the University.

The *Industrieschule* is more fully attended than the gymnasium, and has about 250 scholars. Like the gymnasium it has an upper and a lower division. The lower division has a three years' course, and the fee, 30 francs a year, is higher than in the corresponding division of the gymnasium. There is not, as in the German *Realschule*, Latin; Latin and Greek being left out and geometrical drawing added, the list of matters of instruction is nearly identical with that of the lower gymnasium, and it is in the proportion of time allotted, and the development given to them, that the two schools, the one designed to lead to the University, the other to what the school-law calls "technical and business lines," differ. The school-course of the lower *Industrieschule* is as a general rule the same for all scholars there, and is obligatory in all its parts for all of them. In the upper division it is not so; there is one programme, but no scholar goes through the whole of it;

* The regulations with respect to this are in Canton Zurich, and in Protestant German countries generally, as in Prussia.

the lessons composing it fall into three groups, that for the mechanical line, that for the chemical line, and that for the business line; and each boy, according to the line of life he intends to follow, is assigned by the rector to the group of lessons suitable for him. Of 84 scholars in the upper *Industrieschule* in 1864, 34 were in the mechanical group, 13 in the chemical, and 37 in the business group. The Education Council urges the masters not to let the school be turned into a place for mere professional study; but this organization gives of course a bias which it is hard to resist. English and Italian make part of the regular school course in this division.

The moment instruction becomes professional it becomes saddled with special expenses, and in the upper *Industrieschule* the school fee is 60 francs a year, a high school-fee for Switzerland. The pupils who follow the chemical line pay another 60 francs a year for the expenses of the laboratory.

The lessons in the upper *Industrieschule* are excellent, and qualified pupils from other public establishments are allowed, if the rector of the *Industrieschule* and their own master consents, to attend particular lessons which are better given at the *Industrieschule* than anywhere else. Young men who have left school, but are following an occupation for which these lessons are useful, are also allowed, if properly qualified, for profiting by them, to attend. They take the title of *Auditoren*, and pay five francs a week for each lesson they follow. Of the 84 pupils in the three groups of the upper *Industrieschule* in 1864, 12 were *Auditoren* of this kind.

Municipal schools at Winterthur.

There are 10 weeks' holiday for the cantonal schools in the year. These holidays were going on when I was at Zurich; but the town of Winterthur has established higher schools both for boys and girls* which, though not cantonal but municipal, emulate the higher schools of Zurich in their organization, and far excel them in their school buildings; these I saw at work, and I saw also those of Basle. Winterthur is, I think, for its school establishments the most remarkable place in Europe. It is the second town for importance in Canton Zurich, and thrives by its manufacture of muslins; but it has not more than 8,000 inhabitants. The schools of this small place recall the municipal palaces of Flanders and Italy. They are the objects of first importance in the town, and would be admirable anywhere; besides the elementary schools there is a *Mittelschule*, an *Industrieschule*, and a gymnasium, all built within the last 25 years and

* I have found it impossible to comply with the Commissioners' wish that I should include in this Report an account of the girls' schools of the Continent. I visited several of them, but in the boys' schools I had already more on my hands than I could well manage, and the girls' schools well merit a separate inquiry, and by an inquirer who has first thoroughly acquainted himself, as I have not, with the working of our girls' schools at home. I will just mention, as places where the girls' schools will richly reward the future inquirer's attention, Naples, Weimar and Zurich. And I will add, that Italian girls seem to me those in all Europe who are best suited for school education as distinguished from home education; who derive most benefit from it, and with the fewest drawbacks of any kind. On the other hand, I doubt whether there is any German or English girl for whom there are not grave drawbacks to balance its benefits.

which have cost the town not less than 100,000*l.* I found about 80 scholars in the gymnasium, about two-thirds of them Winterthur boys; the rest come from a distance, and board, under regulations similar to those in Prussia, with the masters or with families in the town. I heard a lesson in Livy in the class which with us would have been the fifth form; the performance was quite as good as that which I remember in the fifth form of Winchester or Rugby. In the *Industrieschule* I found about 200 scholars; in the upper division of this there is the same grouping of scholars for different lines (*Richtungen*) which obtains at Zurich. The teaching is said by competent judges to be particularly well organized in these higher *Realschulen* of Switzerland, and on that account I print the scheme of instruction for one of the best of them (that at Basle) in the appendix to my Report. The Winterthur higher schools, though not cantonal schools, have, and deservedly, an exceptional position; they are under the inspection of a cantonal commission, and in immediate relation with the Education Council. These Winterthur burghers seek competent advice and superintendence with as much zeal as in England a batch of local people show in resisting it. Nor is it to get money that they have recourse to the State; the grant from the state to these Winterthur establishments is 80*l.* a year, and the town of Winterthur itself spends 3,200*l.* a year on them. This sum is supplied from the *Bürgergut* or communal property, and it is to be observed that generally in a Swiss parish it is the commune that is the great proprietor, as in England it is the squire. The sons of Winterthur burghers have free schooling; others pay much the same rates as at Zurich. As at Zurich, too, half of the school-fees is divided among the teachers; the other half goes to the school-chest.

Associations of teachers.

The teachers in Canton Zurich form a sort of guild, and exercise considerable influence. I have already said how they are represented on the local *Schulpflegen.* In the higher schools they form *Convente* and *Specialconvente,* the *Convent* being for each school, the *Specialconvent* for each division, upper or lower, of each school. They are in fact masters' meetings, as at Rugby we used to call them; but in Switzerland they have a legal status and report regularly to the Commissions of Superintendence. They are said to be of great service in keeping the school-work properly graduated, and in maintaining uniformity of standard. New rules they can only make for points which the school-law and the regulations of the Education Council have not already settled, but changes cannot be introduced without their opinion being taken upon them. In the same way, the teachers of the primary and secondary schools of each *Bezirk,* or district, form a *Schulcapitel,* or school chapter, which meets four times a year, forms sections for the discussion of any special matters in which schools and teachers are interested, reports to the Education Council, and has a right to be heard before any change in the work-plan or in the regulations of the popular schools are adopted. These chapters, again, unite with the whole body of teachers of the higher schools of the canton to form a School

Synod, having for its business the promotion of education in the canton, and to convey the wishes and proposals of the teaching body to the authorities. This Synod meets once a year, its business and method of proceeding being always prepared beforehand by a Pro-Synod.

Private schools must, as I have said, if they are schools for popular education, give an instruction corresponding to that of the public popular school. But besides this, for the opening of any private school the consent of the State, and an official approval of the work-plan, are necessary; and all private schools are entirely open to State inspection and must furnish yearly reports of themselves to the authorities. The great development of the public schools in the last 30 years, and the increasing favour they enjoy, tend to make the Swiss private schools of less and less importance, so far as the Swiss themselves are concerned. The better status of the public school teacher is an attraction for masters: the better guarantees of the public school are an attraction for parents. I met at Basle an excellent teacher, the son of a Swiss private schoolmaster of European celebrity; the son had given up his father's establishment when it came, at his father's death, into his hands, in order to take the more interesting and honourable functions of a public teacher. I was told by several Swiss of great authority and standing, who had themselves been brought up in Fellenberg's famous school at Hofwyl, that they would not send their own sons to any but a public school, and that even a man of Fellenberg's special gifts could not now, since the improvement of the public schools, establish a private school to vie with them successfully. When it was the habit of the young Swiss cadet of family to enter into foreign service, he had a special inducement to go to a famous school like that at Hofwyl, where, by meeting Austrians or Bavarians who had been attracted thither by Fellenberg's reputation, he formed connexions which were useful to him in after life. This habit having been stopped, a considerable attraction which a private school like Fellenberg's offered to the Swiss of the last generation has ceased; and the best informed Swiss will tell you that the Swiss private schools, of which we hear so much in England, now exist mainly *pour exploiter les Anglais*, who do indeed invite *exploitation*. Private schools.

At the apex of the school-system of Canton Zurich stands the *Hochschule*, or university. This is in all important respects a German university, and many of the professors come from Germany; the famous Dr. Strauss was, as is well known, a professor here. The canton pays the professors, of whom there are five for each of the three faculties of theology, law and medicine, and fourteen for that of philosophy. Here, as in Germany, the professors are divided into *ordinarii* and *extraordinarii*, full professors and assistant professors; and their teaching is powerfully supplemented by that of the *Privatdocenten*. The Education Council proposes professors, the Council of State appoints them, the opinion of the faculty concerned being always taken. That of the Church Council (*Kirchenrath*) is also taken on the The University.

appointment of a theological professor. The professors, *ordinarii* and *extraordinarii*, of each faculty, form a body who elect their own dean; the deans of faculty and the ordinary, or full, professors compose the *senatus academicus*, which chooses the rector, who must be confirmed by the Council of State. The Academical Senate is charged with the discipline of the University, and has a right to be heard before the Education Council can introduce any changes in academical matters.

At the end of 1864 there were in the *Hochschule* of Zurich 200 matriculated students, besides seven who were not matriculated. Of the 200, 27 were in the faculty of theology, 37 in that of law, 78 in that of medicine, and 58 in that of philosophy. The Swiss students were 138 out of the 200; of these 138 the Zurichers were 63. But of the 58 students in philosophy the Swiss numbered only 26, and of these 26 the Zurichers were only 8. The remaining 32 came chiefly from Germany and Russia; two were from England.

The Federal School or Polytechnicum.

But more noteworthy than the university at Zurich is the Polytechnicum, or high school for forming civil engineers, for teaching the applied sciences, and for training teachers for all departments of technical instruction. This is a Federal and not a Cantonal institution. It was established by the Federal Council for the benefit of the whole of Switzerland, and a commission appointed by the Federal Council administers it. It was placed at Zurich, where it occupies a commanding position on a slope above the town and is one of the first objects that attracts a stranger's notice.

This Polytechnicum was in vacation when I visited Zurich, but I saw at work another admirable institution of the same kind, the Polytechnicum at Stuttgardt, of which the object and the methods are very much the same. That of Zurich has six divisions; the school of construction, the school of civil engineering, the school of mechanics, the school of chemistry, the school of woodcraft, and the school of mathematical and natural sciences, of literature, and of moral and political sciences. The course in the different divisions varies in length from 2 to 3 years. The fees are low, and the staff of professors excellent; some of the most distinguished scientific men of Germany have been brought here by the Swiss Government. A professor may in his lessons use the German, French, or Italian language, as suits him best. The yearly cost of the institution is about 340,000 francs (13,600*l.*), of which 16,000 fr. are given by the town of Zurich, 10,000 fr. come from the *Schulfond*, 64,000 fr. from the students' fees, and the remaining 250,000 fr. from the Swiss Confederation. There are about 50 professors and 500 students.

The Polytechnicum, though not specially belonging to Canton Zurich, worthily crowns by its presence the astonishing series of schools which this Canton exhibits, and which I have endeavoured to describe to the Commissioners. A territory with the population of Leicestershire maintains a university, a veterinary school, a school of agriculture, two great classical schools, two great *real* schools, a Normal school for training primary and secondary teachers, 57

secondary schools, and 365 primary schools; and many of these schools are among the best of their kind in Europe.

Merits and defects of Swiss schools.

The primary, secondary, and *real* schools, are those of which this can be affirmed most decidedly. I can well understand that M. Baudouin, who was sent by the French Minister of Public Instruction to see the schools for the middle and trading classes in countries which have any such schools to show (England, alas! is not of the number of these countries), and who has published an elaborate and invaluable report* of what he saw, should have imagined himself in Paradise when he came to Zurich, and should have thought no words too strong to express his admiration. The *Realstudien* of the Swiss schools are prosecuted without any of the misgivings and hesitations which hang about them in Germany. Switzerland does not much trouble her head with ideas such as haunt a German Education Minister in genuine Germany, that "*die unwissentschaftliche Praxis des Nützlichkeits-princips den Charakter einer allgemeinen höheren Bildungsanstalt aufhebe*;" or share his concern because, do what he will, the programme of a *Realschule* possesses less *innere Geschlossenheit* than that of a gymnasium. The aim which Swiss education has before it, is not, I think, the highest educational aim; the idea of what the French call *la grande culture* has not much effect in Switzerland, and accordingly it is not in her purely literary and scientific high schools, and in the line of what is specially called a liberal education, that she is most successful. Her highest teachers are Germans from Germany; but large as are the salaries paid to draw these distinguished foreigners to Zurich, a genuine German, I am told, does not much like the atmosphere in which he finds himself there; he sighs for the more truly scientific spirit, the *wissentschaftliche Geist*, of the universities of his own country, and will not in general stay long at Zurich. The spirit which reigns at Zurich, and in the thriving parts of German Switzerland, is a spirit of intelligent industrialism, but not quite intelligent enough to have cleared itself from vulgarity. At Lausanne and Geneva the French language and the traditions of a high intellectual life introduce other elements; but even at Lausanne and Geneva, the effect of the great movement of the last thirty years, has been to develope, as the principal power there, the same sort of intelligent industrialism as is the principal power in German Switzerland. The representatives of the old high culture and intellectual traditions of French Switzerland are not now masters of the situation there, and the course of events pushes them more and more aside.

But the grand merit of Swiss industrialism, even though it may not rise to the conception of *la grande culture*, is that it has clearly seen that for genuine and secure industrial prosperity, more is required than capital, abundant labour, and manufactories; it is necessary to have a well instructed population. So far as instruction and the intelligence developed by instruction are

* *Rapport sur l'état actuel de l'enseignement spécial en Belgique, en Allemagne et en Suisse*, par J. M. Baudouin; Paris, Imprimerie Impériale, 1865.

valuable commodities, the Swiss have thoroughly appreciated their market worth, and are thoroughly employing them.

The Swiss and the Scotch conception of education.

They seem to me in this respect to resemble the Scotch. The Scotch, too, as the state of their universities show, have at present little notion of *la grande culture*. Instead of guarding, like the Germans, the *wissentschaftliche Geist* of their universities, they turn them into mere school-classes; and instead of making the student, as in Germany, pass to the university through the *prima* of a high school, Scotland lets the University and the High School of Edinburgh, with a happy spirit of independence worthy of their neighbours south of the Tweed, compete for schoolboys; and the University recruits its Greek classes from the third or fourth forms of the High School. Accordingly, while the aristocratic class of Scotland is by its bringing up, its faults, its merits, much the same as the aristocratic class in England, the Scotch middle class is in *la grande culture* not ahead of the English middle class. But so far as intellectual culture has an industrial value, makes a man's business-work better, and helps him to get on in the world, the Scotch middle class has thoroughly appreciated it and sedulously employed it, both for itself and for the class whose labour it uses; and here is their superiority to the English, and the reason of the success of Scotch skilled labourers and Scotch men of business everywhere. In this they are like the Swiss, though the example and habits of England have, as was inevitable, prevented them from developing their school institutions, even for their limited purpose, with the method and admirable effectiveness shown by the Swiss.

Superiority of the German conception of it.

What I admire in Germany is, that while there too industrialism, that great modern power, is making at Berlin, and Leipzig, and Elberfeld, the most successful and rapid progress, the idea of culture, culture of the only true sort, is there a living power also. Petty towns have a university whose teaching is famous through Europe; and the King of Prussia and Count Bismark resist the loss of a great *savant* from Prussia, as they would resist a political check. If true culture becomes at last a civilizing power in the world, and is not overlaid by fanaticism, by industrialism, or by frivolous pleasure-seeking, it will be to the faith and zeal of this homely and much ridiculed German people, that the great result will be mainly owing.

Excellent foundations laid by the Swiss.

Meanwhile let us be grateful to any country, which, like Switzerland, prepares by a broad and sound system of popular education the indispensable foundations on which a civilizing culture may in the future be built; and do not let us be too nice, while we have ourselves not even laid the indispensable foundations, in canvassing the spirit in which others have laid them.

CONCLUSION.

Suggestions in conclusion.

The Commissioners will probably expect that at the end of this long Report I should offer some opinion as to the lessons to be drawn from all which I have been describing. This I shall attempt to do; although I can hardly hope, perhaps, to communicate to the Commissioners the weight of conviction with which I myself am left by what I have seen.

England and the Continent. Civil organization in modern states.

I have now on two occasions, first in 1859 and again last year, had to make a close study, on the spot and for many months together, of one of the most important branches of the civil organization of the most civilized States of the Continent. Few Englishmen have had such an experience. If the convictions with which it leaves me seem strange to many Englishmen, it is not that I am differently constituted from the rest of my countrymen, but that I have seen what would certainly give to them too, if they had seen it with their own eyes as I have, reflexions which they never had before. No one of open mind, and not hardened in routine and prejudice, could observe for so long and from so near as I observed it, the civil organization of France, Germany, Italy, Switzerland, Holland, without having the conviction forced upon him that these countries have a civil organization which has been framed with forethought and design to meet the wants of modern society, while our civil organization, in England, still remains what time and chance have made it. The States which we really resemble, in this respect, are Austria and Rome. I remember I had the honour of saying to Cardinal Antonelli, when he asked me what I thought of the Roman schools, that for the first time since I came on the Continent I was reminded of England. I meant, in plain truth, that there was the same easy-going and absence of system on all sides, the same powerlessness and indifference of the State, the same independence in single institutions, the same free course for abuses, the same confusion, the same lack of all idea of *co-ordering* things, as the French say, that is, of making them work fitly together to a fit end; the same waste of power therefore, the same extravagance, and the same poverty of result, of which the civil organization of England offers so many instances. To the like effect a French publicist said the other day with great truth to the Austrian Government:—"La cour de Vienne comprendra-t-elle qu'il n'y a point de salut pour les états Européens en dehors des idées modernes, c'est-à-dire des libres institutions populaires *et des organisations administratives positives et strictement contrôlées?*" We have in England the *libres institutions populaires*, so for us the point is in the last words of the sentence. Modern States cannot either do without free institutions, or do without a rationally planned and effective civil organization. Unlike in other things, Austria, Rome, and England are alike in this, that the civil organization of each implies, at the present day, a denial or an ignorance of the right of mind and reason to rule human affairs. At Rome this

right is sacrificed in the name of religion; in Austria, in the name of loyalty; in England, in the name of liberty. All respectable names; but none of them will in the long run save its invoker, if he persists in disregarding the inevitable laws which govern the life of modern society.

Civil organization transformed not only in France but also in other continental states.

Every one is accustomed to hear that France paid the horrors of her great Revolution as the price for having a *tabula rasa* upon which to build a new civil organization. But what one learns when one goes upon the Continent and looks a little closely into things is, that all the most progressive States of the Continent have followed the example of France, and have transformed or are transforming their civil organization. Italy is transforming hers by virtue of the great opportunity which the events of the last seven years have given her. Prussia transformed hers from 1807 to 1812, by virtue of the stern lesson which her disasters and humiliation had then read her. Russia is at this moment accomplishing a transformation yet more momentous. The United States of America came into the world, it may be said, with a *tabula rasa* for a modern civil organization to be built on, and they have never had any other. What I say is, that everywhere around us in the world, wherever there is life and progress, we find a civil organization that is modern; and this in States which have not, like France, gone through a tremendous revolution, as well as in France itself.

Not in England.

Who will deny that England has life and progress? but who will deny also that her course begins to show signs of uncertainty and embarrassment? This is because even an energy like hers cannot exempt her from the obligation of obeying natural laws; and yet she tries to exempt herself from it when she endeavours to meet the requirements of a modern time and of modern society with a civil organization which is, from the top of it to the bottom, not modern. Transform it she must, unless she means to come at last to the same sentence as the Church of Sardis: "*Thou hast a name that thou livest, and art dead.*" However, on no part of this immense task of transformation have I now to touch, except on that part which relates to education. But this part, indeed, is the most important of all; and it is the part whose happy accomplishment may render that of all the rest, instead of being troubled and difficult, gradual and easy.

A result of this in English popular education.

About popular education I have here but a very few words to say. People are at last beginning to see in what condition this really is amongst us. Obligatory instruction is talked of. But what is the capital difficulty in the way of obligatory instruction, or indeed any national system of instruction, in this country? It is this: that the moment the working class of this country have this question of instruction really brought home to them, their self-respect will make them demand, like the working classes on the Continent, *public* schools, and not schools which the clergyman, or the squire, or the mill-owner, calls "my school." And what is the capital difficulty in the way of giving them public schools? It is this: that the public school for the people must rest upon the

municipal organization of the country. In France, Germany, Italy, Switzerland, the public elementary school has, and exists by having, the commune and the municipal government of the commune as its foundations, and it could not exist without them. But we in England have our municipal organization still to get; the country districts, with us, have at present only the feudal and ecclesiastical organization of the Middle Ages, or of France before the Revolution. This is what the people who talk so glibly about obligatory instruction, and the Conscience Clause, and our present abundant supply of schools, never think of. The real preliminary to an effective system of popular education, is, in fact, to provide the country with an effective municipal organization; and here, then, is at the outset an illustration of what I said, that modern societies need a civil organization which is modern.*

English secondary and superior instruction not touched by the State.

We have nearly all of us reached the notion that popular education it is the State's duty to deal with. Secondary and superior instruction many of us still think should be left to take care of themselves. Well, this is what was generally thought, or at any rate, practised, in old times, all over Europe. I have shown how the State's taking secondary instruction seriously in hand dates, in Prussia, from Wilhelm von Humboldt in 1809; in the same year, a year for Prussia of trouble and anxious looking forward, he created the University of Berlin. In Switzerland the State's effective dealing with all kinds of public instruction dates from within the last thirty years; in Italy it dates from 1859. In all these countries the idea of a sound civil organization of modern society has been found to involve the idea of an organization of secondary and superior instruction by public authority, by the State.

The Commissioners will ask: What inconvenience has arisen in England from pursuing the old practice? Their inquiries in England, I feel sure, will have satisfied them that we have not a body of 65,000 boys of the middle and upper classes receiving so good an instruction as 65,000 boys of the same classes are receiving in the higher schools of Prussia, or even of France. They will not refuse to believe, though their inquiries have not gone to this point, that we have not a body of 6,300 university students in England receiving so good an instruction as the 6,300 matriculated students in the Prussian universities, or even as the far more numerous

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* France has now 37,500 communes, and nearly 37,500,000 inhabitants; about one commune, therefore to every 1,000 inhabitants. The mayor of the commune is named by the Crown, and represents the State, the central power; the municipal council, of which the mayor is president, is elected by universal suffrage of the commune.

We have in England 655 unions and about 12,000 parishes; but our communes, or municipal centres, ought at the French rate to be 20,000 in number. Nor is this number more than is required in order to supply a proper basis for the national organization of our elementary schools. A municipal organization being once given, the object should be to withdraw the existing elementary schools from their present private management, and to reconstitute them on a municipal basis. This is not the place to enter into details as to the manner in which such a withdrawal is to be effected; I will remark only that all reforms which stop short of such a withdrawal and reconstitution are and must be mere patchwork.

students in the French faculties, are receiving. Neither is the secondary and superior instruction given in England on the whole so good, nor is it given, on the whole, in schools of so good a standing. Of course what good instruction there is, and what schools of good standing there are to get it in, fall chiefly to the lot of the upper class. It is on the middle class that the inconvenience, such as it is, of getting indifferent instruction, or getting it in schools of indifferent standing, mainly comes. This inconvenience, as it strikes one after seeing attentively the schools of the Continent, has two aspects. It has a social aspect, and it has an intellectual aspect.

Inconveniences of this. The social inconvenience.

The social inconvenience is this. On the Continent the upper and middle class are brought up on one and the same plane. In England the middle class, as a rule, *is brought up on the second plane*. One hears many discussions as to the limits between the middle and the upper class in England. From an educational point of view these limits are perfectly clear. Half a dozen famous schools, Oxford or Cambridge, the army or navy, and those posts in the public service supposed to be posts for gentlemen, these are the schools all or any one of which give a training, a stamp, a cast of ideas, which make a sort of association of all those who share them, and this association is the upper class. Except by one of these modes of access an Englishman does not, unless by some special play of aptitude or of circumstances, become a vital part of this association, for he does not bring with him the cast of ideas in which its bond of union lies. This cast of ideas is naturally for the most part that of the most powerful and prominent part of the association, the aristocracy. The professions furnish the more numerous but the less prominent part; in no country, accordingly, do the professions so naturally and generally share the cast of ideas of the aristocracy as in England. This cast of ideas, judged from its good side, is characterized by a high spirit, by dignity, by a just sense of the greatness of great affairs,—all of them governing qualities; and the professions have accordingly long recruited the governing force of the aristocracy, and assisted it to rule. Judged from its bad side, this cast of ideas is characterized by its indisposition and incapacity for science, for systematic knowledge. The professions are on the Continent the stronghold of science and systematic knowledge; in England, from the reason above assigned, they are not. They are also in England separate, to a degree unknown on the Continent, from the commercial and industrial class with which in social standing they are naturally on a level. So we have amongst us the spectacle of a middle class cut in two in a way unexampled anywhere else; of a professional class brought up on the first plane, with fine and governing qualities, but without the idea of science; while that immense business class, which is becoming so important a power in all countries, on which the future so much depends, and which in the leading schools of other countries fills so large a place, is in England brought up on the second plane, cut off from the aristocracy and the professions, and without governing qualities.

If only, in compensation, it had science, systematic knowledge! The stronghold of science would naturally be in a nation's middle class, who have neither luxury nor bodily toil to bar them from it. But here comes in the intellectual inconvenience of the bad condition of the mass of our secondary schools. On the Continent, if the professions were as aristocratic in their indifference to science as they are here, the business class, educated as it is, would at once wrest the lead from them, and would be fit to do so. But here in England, the business class is not only inferior to the professions in the social stamp of its places of training, it is actually inferior to them, maimed and incomplete as their intellectual development is, in its intellectual development. Short as the offspring of our public schools and universities come of the idea of science and systematic knowledge, the offspring of our middle class academies probably come, if that be possible, even shorter. What these academies fail to give in social and governing qualities, they do not make up for in intellectual power. The intellectual inconvenience.

If this is true, then that our middle class does not yet itself see the defects of its own education, perceives no practical inconvenience to itself from them, and is satisfied with things as they are, is no reason for regarding this state of things without disquietude. "*He that wandereth out of the way of understanding shall remain in the congregation of the dead;*" sooner or later, in spite of his self-confidence, in spite of his energy, in spite of his capital, he must so remain, by virtue of nature's laws. But if the English business class can listen to testimonies that in the judgment of others, at any rate, its inferior education is beginning to threaten it with practical inconvenience, such testimonies are formidably plentiful. A diplomatist of great experience, not an Englishman but much attached to England, who in the course of the acquisition and the construction of the Italian lines of railroad, had been brought much in contact with young men of business of all nations, told me that the young Englishman of this class was manifestly inferior, both in manners and instruction, to the corresponding young men of other countries. That is, he had been brought up, as I say, on a lower plane. And the Swiss and Germans aver, if you question them as to the benefit they have got from their *Realschulen* and Polytechnicums, that in every part of the world their men of business trained in those schools are beating the English when they meet on equal terms as to capital; and that when English capital, as so often happens, is superior, the advantage of the Swiss or the German in instruction tends more and more to balance this superiority. M. Duruy, the French Minister of Public Instruction, confirms this averment, not as against England, but generally, by saying that all over the Continent the young North German, or the young Swiss of Zurich or Basle, is seizing, by reason of his better instruction, a confidence and a command in business which the young men of no other nation can dispute with him. This confidence, whether as yet completely justified or not by success, is a force which will go far to ensure its own triumph. Their practical results.

Science and systematic knowledge more prized on the Continent than in England.

But the idea of science and systematic knowledge is wanting to our whole instruction alike, and not only to that of our business class. While this idea is getting more and more power upon the Continent, and while its application there is leading to more and more considerable results, we in England, having done marvels by the rule of thumb, are still inclined to disbelieve in the paramount importance, in whatever department, of any other. And yet in Germany every one will tell you that the explanation of the late astonishing achievements of Prussia is simply that every one concerned in them had thoroughly learnt his business on the best plan by which it was possible to teach it him. In nothing do England and the Continent at the present moment more strikingly differ than in the prominence which is now given to the idea of science there, and the neglect in which this idea still lies here; a neglect so great that we hardly even know the use of the word science in its strict sense, and only employ it in a secondary and incorrect sense. The English notion,—for which there is much to be said if it were not pushed to such an excess,—is that you come to do a thing right by doing it, and not by first learning how to do it right and then doing it. The French, who in the extent and solidity of their instruction are, as a nation, so much behind the Germans, are yet in their idea of science quite in a line with the Germans, and ahead of us. That is because there is in France a considerable highly instructed class into whose whole training this idea of science has come, and whose whole influence goes to procure its application. We have no considerable class of this kind. We have a much larger reading class than the French, but reading for amusement, not study; occupied with books of popular reading that leave the mind as inaccurate, as shallow, and as unscientific as it was before. The French have a much more considerable class than we have which really studies. A good test of this is the description of foreign books which get translated. Now the Commissioners will perhaps be surprised to hear that a German scientific book of any sort,—on philosophy, history, art, religion, &c.,—is much more sure of being translated into French than it is into English. A popular story or a popular religious book is sure enough of being translated into English; there is a public for a translation of that; but in France there is a public, not large certainly, but large enough to take an edition or two, for a translation of works not of this popular character.* In Germany, of course, there is a yet far larger public of such a kind. The very matter of public instruction suggests an illustration on this point, and an illustration at my own expense. It has been quite the order of the day here, for some years past, to discuss the subject of popular education. This is a subject which can no more be known without being treated comparatively, than anatomy can be known without being treated comparatively. When it was under discussion in

* There is nothing like an illustration, so let me name these three standard works, Creuzer's *Symbolik*, Preller's *Römische Mythologie*, and Von Hammer's *Geschichte des Osmanischen Reichs*, of each which there is a translation in French, and none in English.

foreign countries, these countries procured accounts of what was done for popular education elsewhere, which were published, found a public to study them for their bearing on the general question, and went through two or three editions. But I doubt whether two hundred people in this country have read Mr. Pattison's report, or mine, on the popular schools of the Continent; simply because the notion of treating a matter of this kind as a matter of scientific study hardly occurs to any one in this country; but almost every one treats it as a matter which he can settle by the light of his own personal experience, and of what he calls his practical good sense.

Effect of this on our application of the sciences,

Our rule of thumb has cost us dear already, and is probably destined to cost us dearer still. It is only by putting an unfair and extravagant strain on the wealth and energy of the country, that we have managed to hide from ourselves the inconvenience we suffer, even in the lines where we think ourselves most successful, from our want of systematic instruction and science. I was lately saying to one of the first mathematicians in England, who has been a distinguished senior wrangler at Cambridge and a practical mechanician besides, that in one department at any rate, that of mechanics and engineering, we seemed, in spite of the absence of special schools, good instruction, and the idea of science, to get on wonderfully well. "On the "contrary," said he, "we get on wonderfully ill. Our engineers "have no real scientific instruction, and we let them learn their "business at our expense by the rule of thumb; but it is a "ruinous system of blunder and plunder. A man without the "requisite scientific knowledge undertakes to build a difficult "bridge; he builds three which tumble down, and so learns how to "build a fourth which stands; but somebody pays for the three "failures. In France or Switzerland he would not have been "suffered to build his first bridge till he had satisfied competent "persons that he knew how to build it, because abroad they "cannot afford our extravagance. The scientific training of the "foreign engineers is therefore perfectly right. Take the present "cost per mile of the construction of an English railway, and the "cost per mile as it was 20 years ago; and the comparison will give "you a correct notion of what rule-of-thumb engineering, "without special schools and without scientific instruction, has "cost the country."

and on our schools and education in general.

Our dislike of authority and our disbelief in science have combined to make us leave our school system, like so many other branches of our civil organization, to take care of itself as it best could. Under such auspices, our school system has very naturally fallen all into confusion; and though properly an intellectual agency, it has done and does nothing to counteract the indisposition to science which is our great intellectual fault. The result is, that we have to meet the calls of a modern epoch, in which the action of the working and middle class assumes a preponderating importance, and science tells in human affairs more and more, with a working class not educated at all, a middle class

educated on the second plane, and the idea of science absent from the whole course and design of our education.

A better organization of secondary and superior instruction a remedy for our deficiencies.

On popular education I have already touched so far as is proper for my present purpose. Secondary and superior instruction remain. It is through secondary instruction that the social inconvenience I spoke of is to be remedied. The intellectual inconvenience is to be remedied through superior instruction, at first acting by itself, and then, through the teachers whom it forms and its general influence on society, acting on the secondary schools. I will sketch, guided by the comparative study of education which I have been enabled to make, the organization of schools which seems to me required for this purpose. My part is simply to say what organization seems to me to be required; it is for the Commissioners to judge what organization seems to them possible or advisable to be recommended. The times, however, are moving; and what is not advisable to-day may perhaps be called for to-morrow.

Public and private schools. Necessity for public schools.

But the Commissioners will hardly, I think, have accompanied me through my long course, without sharing the conclusion that at any rate a public system of schools is indispensable in modern communities. From the moment you seriously desire to have your schools efficient, the question between public and private schools is settled. Of public schools you can take guarantees, of private schools you cannot. Guarantees cannot be absolutely certain. It is possible for a private school, which has given no guarantees, to be good, it is possible for a public school, which has given guarantees, to be bad. But even in England the disbelief in human reason is hardly strong enough to make us seriously contend that a rational being cannot frame for a known purpose guarantees which give him, at any rate, more numerous chances of reaching that purpose than he would have without them.

With public schools, an Education Minister necessary.

If public schools are a necessity, then an Education Minister is a necessity. Merely for administrative convenience he is, indeed, indispensable. But what is yet more important than administrative convenience is to have, what an Education Minister alone supplies, *a centre in which to fix responsibility.**

A High Council of Education desirable.

The country at large is not yet educated enough, political considerations too much overbear all others, for a minister with a board of six or seven councillors, like the minister at Berlin, to be left alone to perform such a task as the reconstruction of public education in this country will at first be. A High Council of Education, such as exists in France and Italy, comprising without regard to politics the personages most proper to be heard on questions of public education, a consultative body only, but whose opinion the Minister should be obliged to take on all important measures not purely administrative, would be an invaluable aid to an English Education Minister, an invaluable institution in our too political country.

* I need hardly point out that at present, with our Lord President, Vice-President, and Committee of Council on Education, we entirely fail to get, for primary instruction, this distinct centre of responsibility.

Functions of such a Council

One or two matters on which I have already touched in the course of my Report are matters on which it would be the natural function of such a Council to advise. It would be its function to advise on the propriety of subjecting children under a certain age to competitive examination, in order to determine their admission to public foundations. It would be its function to advise on the employment of the examination-test for the public service; whether this security should, as at present, be relied on exclusively; or whether it should not be preceded by securities for the applicant having previously passed a certain time under training and teachers of a certain character, and stood certain examinations in connexion with that training. It would be its function to advise on the organization of school and university examinations, and their adjustment to one another. It would be its function to advise on school books, on the graduation of schools in proper stages, from the elementary to the highest school; and, above all, it would be its function to advise on studies, and on the plan of work for schools; a business which, as I have said, is more and more inviting discussion and ripening for settlement. We have excellent materials in England for such a Council. Properly composed and properly representing the grave interests concerned in the questions it has to treat, it would not only have great weight with the minister, but great weight, as an illustrious, unpaid, deliberative, and non-ministerial body, with the country, and would greatly strengthen the minister's hand for important reforms.

Provincial School Boards to be organized

Provincial School Boards, too, we have in this country very good materials for forming, and this institution of Germany is well suited to our habits, supplies a basis for local action, and preserves one from the inconveniences of an over centralized system like that of France. Eight or ten provincial School Boards should be formed, not too large, five or six members being the outside number for each Board, and one member being paid. This Board would be administrative; it would represent the State in the country, keeping the Education Minister informed of local requirements and of the state of schools in each district; being the direct public organ of communication with the schools, superintending the execution of all public regulations applied to them, visiting them so far as may be necessary, and representing the State by the presence of one of its members at their main annual examination. An elaborate system of inspection, modelled on that of primary schools, is out of place when applied to higher schools; the French school authorities complained to me that they were over inspected, and no doubt there are evident and solid objections to putting a *lycée* on the same footing, as regards inspection, with an elementary school. The Prussian system is far better, which resolves inspection, for higher schools, mainly into a concert of the State with the school authorities in great examinations,—as effective a way of inspection, in real truth, as can be found. What special visits may happen to be required are best made, as in Prussia, by members of the Provincial Boards, or by councillors of the Central Department; and a staff of school inspectors for higher schools is neither requisite nor desirable.

How to make public schools.

Where are the English higher schools, it will be asked, with which this Minister, this Council, and these School Boards are to deal? Guided by the experience of every country I have visited, I will venture to lay down certain propositions which may help to supply an answer to this question. Wherever there is a school-endowment, *there is a right of public supervision, and, if necessary, of a resettlement of the endowment by public authority.* Wherever, again, there is a school endowment from the Crown or the State, *there is a right, to the State, of participation in the management of the endowment, and of representation on the body which manages it.* These two propositions, which in ten years' time will even in England be admitted on all hands to be indisputable, supply all that is necessary for a public system of education. School endowments will certainly be dealt with ere long, and the extraordinary immunity which from the peculiar habits and isolation of this country the corporations or private trustees administering them have hitherto enjoyed, is really a reason for applying the principles of common sense and public policy, when they are at last applied to these matters, the more stringently instead of the less stringently. Endowments enough have merited an absolute withdrawal from their present bad application, and an absolute appropriation by public authority for the purposes of a better application, to furnish the State with means for creating, as a commencement, a certain number of Royal or Public schools, to be under the direct control of the Education Department and the Provincial Boards; and in which all the regulations for management, fees, books, studies, methods, and examinations, devised by public authority as most expedient, would have force unreservedly. Other schools would be found offering to place themselves under public administration, as soon as this administration began to inspire respect and confidence; and organized rightly, it would immediately inspire respect and confidence. A body of truly public schools would thus be formed, offering to the middle classes places of instruction with sound securities and with an honourable standing. Nor would these new schools long be in antagonism with our present chief schools, and following a different line of movement from them. Some of our present chief schools, like Eton and Westminster and Christ's Hospital, are royal foundations. Here the right of the State to have a share in the whole administration of the institution, and a voice in the nomination of the masters, immediately arises. Others, like Winchester, Rugby, and Harrow, are not royal foundations, but all of them are foundation schools, and therefore to all of them, as such, a right of public supervision applies. The best form this supervision can possibly take is that of a participation, as in Germany, by the public authority represented through the Provincial School Boards or through members of the High Council of Education, in their main examinations. On these examinations matriculation at the University,* and access to all the higher lines of public employment, should be made to depend. The pupils of private schools should be

* But there should be a different matriculation examination for each faculty, and, except for the faculties of theology and arts, Greek should not be required.

admitted to undergo them. In this way every endowed school in the kingdom would have yearly an all-important examination following a line traced or sanctioned by the most competent authority, the Superior Council of Education, and with a direct or indirect representation of this authority taking part in it. The organization of studies in our very best schools could not fail to gain by this; in all but the very best, it would be its regeneration. Even in England, where the general opinion would be opposed to requiring, as in Germany, for the appointment of all public schoolmasters the sanction of a public authority, there could be no respectable objections urged to such a mode of public intervention as this; the one dam, to repeat Wilhelm von Humboldt's words, which we can set up against the misuse of their patronage by private trustees. And we should at the same time get the happiest check put to the cram and bad teaching of private schools, by compelling them either to adjust their studies to sound and serious examinations, or to cease to impose upon the credulity of ignorant parents.

Defects of our University system. Oxford and Cambridge merely *hauts lycées.*

The mention of the matriculation examination brings me to superior or University instruction. This is, in the opinion of the best judges, the weakest part of our whole educational system, and the Commissioners must not hope to improve effectually the secondary school without doing something for the schools above it, with which it has an intimate natural connexion. The want of the idea of science, of systematic knowledge, is, as I have said again and again, the capital want, at this moment, of English education and of English life; it is the University, or the superior school, which ought to foster this idea. The University or the superior school ought to provide facilities, after the general education is finished, for the young man to go on in the line where his special aptitudes lead him, be it that of languages and literature, of mathematics, of the natural sciences, of the application of these sciences, or any other line, and follow the studies of this line systematically under first-rate teaching. Our great Universities, Oxford and Cambridge, do next to nothing towards this end. They are, as Signor Matteucci called them, *hauts lycées;* and though invaluable in their way as places where the youth of the upper class prolong to a very late age, and under some very admirable influences, their school education, and though in this respect to be envied by the youth of the upper class abroad and if possible instituted for their benefit, yet, with their college and tutor system, nay, with their examination and degree system, they are still, in fact, *schools*, and do not carry education beyond the stage of general and school education. The examination for the degree of Bachelor of Arts, which we place at the end of our three years' university course, is merely the *Abiturienten-examen* of Germany, the *épreuve du baccalauréat* of France, placed in both those countries at the entrance to university studies instead of, as with us, at their close. Scientific instruction, University instruction, really begins when the degree of Bachelor (*bas chevalier*, knight of low degree) is taken, and the preparation for Mastership in any line of study, or for Doctorship (fitness to teach it), commences. But for Mastership or Doctorship, Oxford and Cambridge have, as is well

known, either no examination at all, or an examination which is a mere form; they have consequently no instruction directed to these grades; no real university instruction, therefore, at all. A machinery for such instruction they have, indeed, in their possession; but it is notorious that they do not practically use it.

London University merely a board of examiners.

The University of London labours under a yet graver defect as an organ of scientific or superior instruction. It is a mere *collegium*, or board, of examiners. It gives no instruction at all, but it examines in the different lines of study, and gives degrees in them. It has real university examinations, which Oxford and Cambridge have not; and these examinations are conducted by an independent board, and not by college tutors. This is excellent; but nevertheless it falls immensely short of what is needed. The idea of a University is, as I have already said, that of an institution, not only offering to young men facilities for graduating in that line of study to which their aptitudes direct them, but offering to them, also, *facilities for following that line of study systematically, under first-rate instruction.* This second function is of incalculable importance; of far greater importance, even, than the first. It is impossible to overvalue the importance to a young man of being brought in contact with a first-rate teacher of his matter of study, and of getting from him a clear notion of what the systematic study of it means. Such instruction is so far from being yet organized in this country, that it even requires a gifted student to feel the want of it; and such a student must go to Paris, or Heidelberg, or Berlin, because England cannot give him what he wants. Some do go; an admirable English mathematician who did not, told me that he should never recover the loss of the two years after his degree he wasted without fit instruction at an English university, when he ought to have been under superior instruction, for which the present university course in England makes no provision. I daresay he *will* recover it, for a man of genius counts no worthy effort too hard; but who can estimate the loss to the mental training and intellectual habits of the country, from an absence,—so complete that it needs genius to be sensible of it, and costs genius an effort to repair it,—of all regular public provision for the scientific study and teaching of any branch of knowledge.

Insufficient number of students under superior instruction in England.

England has twenty millions of inhabitants, and the matriculated students in England number about 3,500. Prussia—the Prussia of my Report—has 18,500,000 inhabitants, and 6,362 matriculated students. France has at least as large a proportion of her population coming under superior instruction. England, with her wealth and importance, has barely one half the proportion of her population coming, even nominally, under superior instruction, that Prussia and France have. But this comparison by no means gives the full measure of her disadvantage, because, as I have just shown, Oxford and Cambridge being in reality but *hauts lycées*, and London University being only a board of examiners, the vast majority of even the 3,500 students of superior instruction whom England nominally possesses, do not, in fact, come under superior instruction at all. This entire absence of the crowning of the edifice not only tends to give us, as I have said, a want of

scientific intellect in all departments, but it tends to weaken and obliterate, in the whole nation, the sense of the value and importance of human knowledge; to vulgarize us, to exaggerate our estimate, naturally excessive, of the importance of material advantages, and to make our teachers, all but the very best of them, pursue their calling in a mere trade spirit, and with an eye to little except these advantages.

Special schools wanted.

Exactly the same effect which in the field of university teaching our want of any real course of superior instruction produces, is produced, in the field of the applied sciences, by our want of special schools like the School of Arts and Trades in Paris, or the *Gewerbe-Institut* of Berlin, or the Zurich Polytechnicum. It is the same crowning of the edifice of instruction which is wanting in both cases; the same bad intellectual habits and defective intellectual action, which are in both cases fostered by this want. Our Science and Art Department at South Kensington is a new experiment in this country, and has been a mark for much obloquy here. I am, as the Commissioners perhaps know, totally unconnected with the department: I am barely acquainted with Mr. Cole who directs it, and I have not the special knowledge requisite for criticizing its operations. But I am bound to say that everywhere on the Continent I found a strong interest directed to this department, a strong sense of its importance and of the excellent effect it had already produced on our industry, with a conviction that in the mere interests of this industry we should be obliged to go on and give to this idea of a special school greater development. I, too, believe that we must have a system of special schools; but this is a subject which well deserves a report to itself, and a reporter to treat it who is better qualified for the business than I am. I touch on it here merely as a branch of the great subject of superior instruction—the instruction which is properly, and in all but special cases, to be given by universities.

And a reorganized university system, taking superior instruction to the students, and not bringing these students to Oxford and Cambridge for it.

To extend this amongst us is the great matter. Considering the wealth and occupations of the middle and upper classes of this country, we ought to have at least 8,000 students coming under this instruction. The Education Department, by the leaving examination which I have mentioned,—an examination to be held at the different schools and to represent the present matriculation examination (where such examination exists),—should take the admission of university students entirely out of the hands of the colleges, and thus save Oxford and Cambridge from the absolute *non-valeurs* (to use M. Duruy's term) of which at present, owing to the laches of many of the colleges, they have far too many. The degree examination should be taken out of the hands of the college tutors, or entrusted, for reasons which I will give presently, to a board of examiners named by public authority. Beyond these changes, it is not in Oxford and Cambridge that the great work to be done is to be accomplished. All around me I hear people talking of university reform, university extension; all these projects end in Oxford or Cambridge, and the most liberal of them with a year's residence there. If there is one thing which my

foreign experience has left me convinced of,—as convinced of as I am of our actual want of superior instruction,—it is this: that we must take this instruction to the students, and not hope to bring the students to the instruction. We must get out of our heads all notion of making the mass of students come and reside three years, or two years, or one year, or even one month, at Oxford or Cambridge, which neither suit their circumstances nor offer them the instruction they want. We must plant faculties in the eight or ten principal seats of population, and let the students follow lectures there from their own homes, or with whatever arrangements for their living they and their parents choose. It would be everything for the great seats of population to be thus made intellectual centres as well as mere places of business; for the want of this at present, Liverpool and Leeds are mere overgrown provincial towns, while Strasburg and Lyons are European cities. Oxford and Cambridge would contribute in the noblest and most useful way to the spread of university instruction, if they placed a number of their professors,—of whom they themselves make little use owing to the college system,—in these new faculties to be established in London or the provinces, where they might render incalculable service, and still retaining the title of Oxford or Cambridge professors, unite things new and old, and help in the happiest manner to inaugurate a truly national system of superior instruction. Oxford and Cambridge can from the nature of things be now-a-days important schools only in theology, arts, and the mathematical and natural sciences. Owing to their college system, which for certain purposes, as I have said, and for a certain class, works well, they do not really need half their professors in even these three faculties, and could spare half of them for use elsewhere. They are actually bad places for schools in law and medicine, and all their professors in these faculties they might with advantage employ where there would be a better field for their services. All future application of Oxford and Cambridge emoluments to national purposes might, with advantage to the country, and honour to Oxford and Cambridge themselves, be made in this direction of endowing chairs for professors and exhibitions for students in university faculties to be organized in the great towns of England. The University of London should be re-cast and faculties formed in connexion with it, in order to give some public voice and place to superior instruction in the richest capital of the world; and for this purpose the strangely devised and anomalous organizations of King's College and University College should be turned to account, and *co-ordered*, as the French say, with the University of London. Contributions from Oxford and Cambridge, and new appointments, might supply what was wanting to fill the faculties, which in London, the capital of the country, should, as at Paris or Berlin, be very strong. London would then really have, what it has not at present, a university.

Centres of superior instruction to be formed in

It is with our superior instruction as with so much else; we have plenty of scattered materials, but these materials need to be co-ordered, and made, instead of being useless or getting in one

another's way as at present, to work harmoniously to one great design. This design should be, to form centres of superior instruction in at least ten different parts of England, with first-rate professors to give this instruction. These professors should of course be grouped in faculties, each faculty having its dean. So entirely have Oxford and Cambridge become mere *hauts lycées*, so entirely has the very idea of a real university been lost by them, that the professors there are not even organized in faculties; and their action is on this account alone, if it were not on other accounts also, perfectly feeble and incoherent. The action of professors grouped in faculties, and concerting, as the professors and *Privatdocenten* of a faculty concert in Germany, their instruction together, is quite another thing. In a place like London all the five faculties of arts, mathematical and natural sciences, theology, law, and medicine, should of course be represented; but it is by no means necessary that each centre of superior instruction should have all these five faculties. Durham, for instance, ought probably to have, as I think a Royal Commission once proposed, but two faculties—a faculty of theology, and a faculty of mathematical and natural sciences. The requirements of different localities, and the facilities they offer for certain lines, must be taken into account. It is evident, for example, that faculties of medicine are best placed in very large towns, where hospitals and hospital patients are numerous.

different parts of England, and professors to be organized in faculties.

Neither is it by any means necessary, or even expedient, that each centre of faculties should have the power of conferring degrees. To maintain a uniform standard of examination and a uniform value for degrees is most important, and this is impossible when there are too many bodies examining for degrees and giving them. Germany suffers from having too many universities granting degrees, and from these degrees bearing a very unequal value. We have two old and important universities, Oxford and Cambridge; one new and important university, London, and we want no more degree-granting bodies than these. The different centres of faculties throughout the country should be in connexion with one or other of the universities, according as they may have received professors from them, or may be nearest to one or the other of them; and each of these three universities should have its board of examiners, composed of professors holding chairs in its district, and with the Superior Council of Education represented on each board. Thus composing your examining board substantially of professors, you would avoid the objection urged against the present examinations of the London University, that they are *in the air*, and that their standard fluctuates; composing it from among the professors of a third part of England, you would avoid the inconveniences of letting the teachers of any set of students have the sole decision of the degrees to be granted to them. All lesser examinations, such as should at the end of each year be held in order to determine whether the student makes progress and is to be allowed to go on with his course, belong naturally, in each centre, to the professors in that centre.

Oxford, Cambridge, and London to remain the only degree-granting bodies.

Education Minister should have the appointment of professors.

Such a system as that of which I have thus given the bare outline, can be properly organized only by an Education Minister, with the concert and advice of a Superior Council of Public Instruction, and, if necessary, with the help of a public grant. The intervention of the State becomes especially necessary in superior instruction, because here the body of public opinion educated enough to discern what is wanted gets smaller than ever, while the importance of organizing your instruction well and committing it to first rate men becomes greater than ever. It is not from any love of bureaucracy that men like Wilhelm von Humboldt, ardent friends of human dignity and liberty, have had recourse to a department of State in organizing universities; it is because an Education Minister supplies you, for the discharge of certain critical functions, the agent who will perform them in the greatest blaze of daylight and with the keenest sense of responsibility. Convocation made me a professor, and I am very grateful to Convocation; but Convocation is not a fit body to have the appointment of professors. It is far too numerous, and the sense of responsibility does not tell upon it strongly enough. A board is not a fit body to have the appointment of professors; men will connive at a job as members of a board who single-handed would never have perpetrated it. Even the Crown, that is, the Prime Minister, is not the fit power to have the appointment of professors, for the Prime Minister is above all a political functionary, and feels political influences overwhelmingly. An Education Minister, directly representing all the interests of learning and intelligence in this great country, a full mark for their criticism, and conscious of his responsibility to them, *that* is the power to whom to give the appointment of professors, not for his own sake, but for the sake of public education. Even if the appointment of professors at Oxford and Cambridge be left as at present, the appointment of every professor in the new faculties should be vested in the Education Minister, and he should be responsible for it; though the faculties should have the right, as they have abroad, of themselves proposing to him candidates they may think proper.

Probable co-operation of existing bodies with the State in organizing this new superior instruction.

Putting Oxford and Cambridge out of the question, all other places in England, even London, would have so much to gain by a regular public organization being given to superior instruction in them, and by their professors acquiring the status and authority of public functionaries, that I cannot doubt that bodies like the Senate of the London University, the Council of London University College, or the trustees of Owens College at Manchester, would gladly co-operate with an Education Minister in transforming and co-ordering their institutions so as to give them a national character and an increased effectiveness. Several of the personages in the Senate of the London University are personages who would naturally have a place in any Superior Council of Public Instruction. Following the Prussian division of school interests into *externa* and *interna*, trustees might remain charged with *externa*, the management of property; while *interna*, the appointment of professors and the organization of faculties, devolved upon the Education Depart-

ment. The great towns chosen to be the seats of the new faculties would most of them gladly charge themselves with providing a fit habitation for a public establishment adding so much to their resources and importance. Many of them would furnish an annual contribution to the expenses of the faculties. I believe there would be more chance of a brisk competition among the chief towns for the honour of being made seats of university faculties, than of their undervaluing it. At any rate they would not be the seats of them long without learning to value them. The important thing is to establish them.

How, when established, it should be employed.

Once established, they should be employed as in a country which relying on its good intentions, its industry, and its wealth, has too long set at nought Solomon's warning: "*They that hate instruction love death.*" The end to have in view is, that every one who presents himself to exercise any calling, shall have received for a certain length of time the best instruction preliminary to that calling. This is not, it must be repeated again and again, an absolute security for his exercising the calling well, but it is the best security. It is a thousand times better security than the mere examination-test on which with such ignorant confidence we are now, in cases where we take any security at all, leaning with our whole weight. The Civil Service Examination should be used in strict subordination to this better and ampler security, and with a view of keeping it real. For some classes of post in the public service the having passed the leaving examination of a public school ought to be demanded; for others, the having gone through the appointed courses and passed the appointed examinations in certain faculties or in certain special schools; for all, one or the other. Then, and not till then, may come in, as a confirmatory and supplementary test, a rationally regulated civil service examination. No minister of religion, to whom, as such, any public functions are assigned, no magistrate, no schoolmaster of a higher school, no lawyer, no doctor, should be allowed to exercise his function without having come for a certain time under superior instruction and passed its examinations. The Pharmaceutical Society should be co-ordered with the faculties of medicine, and no druggist should be allowed to practice without its instruction and certificates. It is with the industrial class that the great difficulty of applying superior instruction arises; this class so large, wealthy, and important, and which needs it so much just because it feels that it needs it so little. Owens College at Manchester with its 100 students, and London University with its 450 students (even if these, who have no appointed faculty instruction, are to be called university students at all), sufficiently show, what is well known, that practically the English industrial class cannot be said to come under superior instruction at all. Their present indifference to it, however, affords no true criterion for judging of their probable willingness to accept it if it were properly organized, brought home to their doors, and made compatible with the necessary conditions of their lives.

Conclusion.

Thus I have attempted to sketch in outline the plan of reorganization for English instruction which is suggested almost irresistibly by a study of public instruction in other European countries, and of the actual condition and prospects of the modern world. To make that study and to render an account of it has been a long and laborious task. The Commissioners will, I hope, be indulgent to the many imperfections which they will find in my performance of it. It was a task for many parts of which I was ill qualified; and it was a task almost beyond any one man's powers, however qualified. They will also pardon anything which may seem too trenchant and absolute in the manner in which I have conveyed my criticisms and suggestions. In the first place, the pressure of matter and space almost obliged me to use great plainness and shortness, and to cut off all accompaniments of deprecation and apology. In the second place, I am addressing in this Report a small body of select judges, who are certainly desirous to hear the plain truth, and capable of receiving it; not the general public, whose ignorance and prejudices require, perhaps, infinite management. To the Commissioners I owed the truth; and the blame I have applied and the changes I have suggested, are, in truth, too little rather than too much. And now I leave this question in the Commissioners' hands, with the profound and unalterable conviction that if our country is destined, as I trust it is destined, still to live and prosper, the next quarter of a century will see a reconstruction of English education as entire as that which I have recommended in this Report, however impossible such a reconstruction may to many now seem.

Seven years ago, having been sent by a former Royal Commission to study the primary schools on the Continent, I was so much struck by all I then saw, and by the comparison of it with what I had just left in England, that looking beyond the immediate scope of my errand, I said to the Commission which sent me: *Organize your secondary instruction.* That advice passed perfectly unheeded, the hubbub of our sterile politics continued, ideas of social reconstruction had not a thought given them, our secondary instruction is still the chaos it was; and yet now, so urgent and irresistible is the impression left upon me by what I have again seen abroad, I cannot help presenting myself before another Commission with an increased demand: *Organize your secondary and your superior instruction.*

I am, Sir,
Your obedient servant,
MATTHEW ARNOLD.

To

The Secretary to the Schools Inquiry Commission.

APPENDIX.

STATISTICS.
PROGRAMMES AND WORK PLANS.

STATISTICS.

1. TABLE showing the NUMBER and POPULATION of the French *Lycées*, with the STATE GRANTS to them, for the YEARS 1842, 1849, 1851, 1855, and 1865 :—

Years.	Number of *Lycées*.	Number of Pupils.	State Grants.		
			For Bursarships and Allowances.	For General Expenses. (Examinations, Salaries of *Agrégés*, &c.)	Fixed Expenses of *Lycées*. (Staff, &c.)
			fr. c.	fr. c.	fr. c.
1842	46	18,697	584,399 91	92,277 12	1,307,103 47
1849	55	20,833	711,375 7	82,026 7	1,500,641 45
1851	57	19,037	679,244 40	80,734 60	1,535,381 87
1855	63	20,960	710,918 78	41,844 48	1,301,918 7
1865	74	32,794	830,000 0	100,000 0	1,900,000 0

2. TABLE showing the NUMBER and POPULATION of the FRENCH COMMUNAL COLLEGES, with the STATE GRANTS to them, for the YEARS 1849,* 1855, and 1865.

Years.	Number of Colleges.	Number of Pupils.	State Grants.
			fr. c.
1849	306	31,706	99,880 94
1855	244	28,219	98,080 86
1865	247	33,038	223,000 0

* It is only since 1845 that the State has made an annual grant to the Communal Colleges.

3. GENERAL TABLE showing the STATE EXPENDITURE in FRANCE for the Year 1865 on the whole of PUBLIC INSTRUCTION.

Object of Expense.	Expenditure.
	fr.
Sect. 1.—Central Administration :—	
Staff	570,950
Matériel	140,000
Total Sect. 1	710,950
Sect. 2.—General Services of Public Instruction:—	
Inspectors-General of public instruction	268,000
General services of public instruction	226,000
Academic administration	1,216,000
Total Sect. 2	1,710,000
Sect. 3.—Superior Instruction, Normal School, Literary and Scientific Establishments:—	
High Normal School	307,610
Faculties	3,828,821
University Library	26,000
Institute of France	615,700
Academy of Medicine	43,700
College of France	277,000
Museum of Natural History	592,380
Astronomical establishments	267,260
School of Living Oriental Languages, Algiers Library and Museum	82,800
École des Chartes	37,800
School of Athens	64,500
Imperial Library	472,500
Public libraries	197,500
Learned societies	70,000
Subvention to the Journal des Savants	15,000
Subscriptions to literary and scientific works	140,000
Grants to *savants* and men of letters	200,000
Grants to teachers and subscriptions to adopted school-books	60,000
Expeditions and missions for scientific purposes	75,000
Collection and publication of unedited documents for French history	120,000
Total Sect. 3	7,493,071
Sect. 4—Secondary Instruction:—	
General expenses of secondary instruction	100,000
Lycées and communal colleges	2,173,000
Bursarships and exemptions	868,000
Total Sect. 4	3,141,000
Sect. 5.—Primary Instruction:—	
Inspection	916,400
State grants to primary schools	5,946,700
Total Sect. 5	6,863,100
Total State expenditure on public instruction	19,918,121

4. TABLE showing the NUMBER and POPULATION of the PUBLIC SECONDARY SCHOOLS of ITALY for the Years 1863–64.

Divisions of the Kingdom of Italy.	Number of Provinces.	Number of Communes.	Population in 1861.	Number of Public Schools.						Number of Pupils in Public Schools.			Number of Teachers in Public Schools.	Number of Teachers in Public Schools who are Ecclesiastics.
				Classical.				Technical.						
				Lyceums.		Gymnasiums.								
				State Lyceums.	Non-State Lyceums.	State Gymnasiums.	Non-State Gymnasiums.	State Technical Schools.	Non-State Technical Schools.	In Lyceums.	In Gymnasiums.	In Technical Schools.		
Northern -	21	4,391	8,616,408	28	12	43	74	21	64	2,282	7,926	6,211	1,204	490
Central -	16	1,067	4,229,987	12	7	6	37	6	38	523	1,800	1,171	619	197
Southern -	13	1,532	5,920,461	13	1	13	4	0	7	326	1,327	123	201	91
Sardinia -	2	371	588,064	2	0	6	6	1	2	111	714	242	103	43
Sicily - -	7	359	2,392,414	7	0	27	2	17	1	120	1,095	521	215	84
Totals -	59	7,720	21,747,334	62	20	95	123	45	112	3,362	12,862	8,268	2,342	905

In 1865 the State expenditure, in Italy, on the whole of public instruction, was in round figures 576,900*l.*; on secondary instruction alone, again in round figures, 137,500*l.*

5. TABLE showing the NUMBER and POPULATION of the PRUSSIAN HIGHER SCHOOLS for the Years 1853, 1859, 1863.

Years.	Number of Higher Schools.						Number of Pupils.	Number of Teachers.	Total of	
	Gymnasiums.	Progymnasiums.	*Realschulen* of first rank.	*Realschulen* of second rank.	Higher Burgher Schools.	Other *Realschulen*.*			Gymnasial Institutions.	*Real* Institutions.
1853	121	28	—	—	—	51	48,780	2,595	149	51
1859	135	31	30	27	3	9	58,622	3,003	166	69
1863	144	28	47	17	13	6	66,135	3,349	172	83

* In 1853 the classification of the various orders of *Realschulen* did not yet exist. The schools of 1859 and 1863, which are entered under the category of "other *Realschulen*," are *Realschulen* of which the organization was not finally completed when these returns were made up.

6. TABLE showing the TOTAL EXPENDITURE on the PRUSSIAN HIGHER SCHOOLS, in each Province of the Kingdom, for the Year 1864.

Provinces.	Contributions supplied by: State. By direct public grant.	State. By grant from endowments at the State's disposal.	Town Municipalities.	Churches and independent Endowments.	Scholars' payments.	Total Expenditure.
	Thlr.	Thlr.	Thlr.	Thlr.	Thlr.	Thlr.
1. Prussia Proper	58,753	20,604	51,837	4,166	134,603	302,106
2. Brandenburg	52,292	6,721	95,583	14,706	301,810	538,688
3. Pomerania	12,422	13,474	42,740	11,501	101,653	188,806
4. Silesia	18,980	68,598	47,324	9,839	166,083	352,899
5. Posen	33,688	21,400	22,994	928	67,963	152,134
6. Prussian Saxony	45,903	62,254	32,965	11,959	142,066	382,907
7. Westphalia	28,006	26,052	33,087	5,994	76,142	200,144
8. Rhine Province and Hohenzollern territories	42,874	14,701	74,516	16,544	202,735	463,000
Totals	292,918	233,804	401,046	75,637	1,193,055	2,580,684

7. TABLE showing the NUMBER and POPULATION of the GERMAN UNIVERSITIES, with the Distribution of their Professors, for the Year 1864.

States.	Complete Universities.	Incomplete Universities.*	Professors and Readers.	Matriculated Students.	Professors. Theology.	Law.	Medicine.	Philosophy.	Political Economy.
Prussia	6	2	600	6,362	88	64	143	281	-
Austria	4	-	396	4,792	42	74	141	116	-
Bavaria	3	9	292	2,706	25	28	72	80	13
Hanover	1	-	122	711	14	19	17	61	-
Saxony	1	-	112	1,007	11	22	30	47	-
Würtemberg	1	-	80	737	14	9	20	25	7
Baden	2	-	155	1,157	14	19	36	56	-
Hesse Darmstadt	1	-	65	386	6	8	15	33	-
Mecklenburg Schwerin	1	-	35	147	4	5	8	16	-
Saxe Weimar	1	-	65	518	7	11	11	28	-
Electoral Hesse	1	-	61	247	9	9	13	24	-
Holstein	1	-	48	201	4	7	14	19	-
Totals	23	11	2,031	18,971	238	275	520	786	

* Incomplete Universities are those which have not the four faculties of Theology, Law, Medicine, and Philosophy.

8. General Table showing the Income and Expenditure of the Prussian Universities for the Year 1861.

Income.

Universities.	From the State.	From Endowments.	Interest of Capital.	University Fees, &c.	Totals.
	Thlr.	Thlr.	Thlr.	Thlr.	Thlr.
1. Berlin - - -	179,890	50	72	7,290	187,302
2. Bonn - - -	115,830	170	2,420	2,580	121,000
3. Breslau - - -	85,803	—	13,462	1,420	100,685
4. Greifswald - -	1,200	57	74,710	673	76,640
5. Halle - - -	61,465	30,635	251	4,220	96,571
6. Königsberg - -	84,422	40	4,020	779	89,261
7. Münster - - -	2,250	15,179	—	1,450	18,879
Totals - -	530,860	46,131	94,935	18,412	690 338

(The income of the University establishments (seminaries, laboratories, collections, &c.) amounted to 287,479 thalers more.)

Expenditure.

Universities.	Administration and Pensions.	Salaries of Professors.	University Establishments.	Aid to Students.	Repairs and Furniture.	Reserve.	Totals.
	Thlr.	Thlr.	Thlr.	Thlr.	Thlr.	Thlr.	Thlr.
1. Berlin -	10,619	93,350	68,095	350	2,000	12,888	187,302
2. Bonn -	8,578	69,800	32,067	3,300	4,619	2,636	121,000
3. Breslau -	7,327	49,248	29,651	5,787	5,000	3,672	100,685
4. Greifswald -	5,494	37,700	27,200	3,726	—	2,020	76,640
5. Halle -	7,020	49,248	24,935	8,006	3,460	4,102	96,571
6. Königsberg -	6,203	37,545	29,941	8,579	2,600	4,393	89,261
7. Münster -	430	12,500	4,692	500	—	757	18,879
Totals -	45,671	349,191	217,081	30,248	17,679	30,468	690,388

9. Table showing the general Receipts and Expenditure of the University of Berlin, with the Income, in detail, of the Establishments belonging to the University, for the Year 1865.

University.

Receipts.	Thlr.	Expenditure.	Thlr.
1. From the State - -	189,069	1. Administration - -	10,804
2. From Endowments -	50	2. Salaries of Professors -	102,400
3. Interest of Capital -	111	3. University Establishments	70,230
4. University Fees, &c. -	7,557	4. Aid to Students - -	350
		5. Repairs and Taxes -	2,000
		6. Reserve - - -	11,003
Total - -	196,787	Total - -	196,787

UNIVERSITY ESTABLISHMENTS.

Establishments.	State Grant.	Interest of Capital.	Endowment.	Totals.
	Thlr. sgr. pf.	Thlr. sgr. pf.	Thlr. sgr. pf.	Thlr. sgr. pf.
1. Divine Service	850 0 0	—	—	850 0 0
2. Clinical Surgery	4,650 0 0	65 15 0	11,970 15 0	16,686 0 0
3. General Clinical Medicine	2,441 0 0	—	—	2,441 0 0
4. Clinical Midwifery	7,300 0 0	—	1,500 0 0	8,800 0 0
5. Widows' Pensions	1,000 0 0	7,224 0 0	4,964 0 0	13,188 0 0
6. Theological Seminary	830 0 0	—	—	830 0 0
7. Philological Seminary	500 0 0	—	—	500 0 0
8. Observatory	3,641 15 0	—	—	3,641 15 0
9. First Chemical Laboratory	1,000 0 0	—	—	1,000 0 0
10. Second Chemical Labbratory	500 0 0	—	—	500 0 0
11. Anatomical Theatre and Collections.	4,297 27 6	—	—	4,297 27 6
12. Physiological Institution	1,129 0 0	—	—	1,129 0 0
13. Institution for Researches in Chemistry and with the Microscope.	600 0 0	—	—	600 0 0
14. Pathological Institution	2,000 0 0	—	—	2,000 0 0
15. Mineralogical Collection	2,843 0 0	—	—	2,843 0 0
16. Library	2,337 0 0	—	—	2,337 0 0
17. Zoological and Entomological Collections.	6,948 0 0	—	—	6,948 0 0
18. Botanic Garden	20,426 24 3	—	—	20,426 24 3
19. Herbarium	3,084 15 0	—	—	3,084 15 0
20. University Garden	1,189 0 0	—	—	1,189 0 0
21. Cabinet of Surgical Instruments	430 0 0	—	—	430 0 0
22. Establishment for Legal Medicine	150 0 0	—	—	150 0 0
23. Pharmacological Collection	100 0 0	—	—	100 0 0
24. Apparatus for Mathematical and Physical Sciences.	800 0 0	—	—	800 0 0
25. Archæological Museum of Christian Art.	300 0 0	—	—	300 0 0
26. Laboratory for Physical Science	500 0 0	—	—	500 0 0
27. Seminary for Mathematical Science.	400 0 0	—	—	400 0 0
Totals	70,229 21 9	7,289 15 0	18,434 15 0	95,953 21 9

10. TABLE showing the NUMBER, POPULATION, SCHOOL ABSENCES, and SCHOOL FUNDS of the POPULAR SCHOOLS of all kinds (*Volksschulen*) of CANTON ZURICH, for the Year 1863–1864.

Kinds of Schools.	Number of Schools.	Number of Teachers.	Number of Scholars.	School Absences.				School Funds.
				Explained.	Punishable.	Total.	Average per Scholar.	
								fr. c.
Common Day Schools (*Allgemeine Volksschulen, Alltagsschulen*).	365	515	25,797	318,496	30,151	348,647	13·12	5,320,647 98
Finishing and Singing Schools (*Ergänzungs- und Singschulen*).	—	—	10,441 11,428	46,354	33,176	79,530	3·13	—
Küssnacht Practising School (attached to Normal School).	1	1	155	1,031	63	1,094	7·06	—
Secondary Schools (*Höhere Volksschulen, Secundarschulen*).	57	74	2,398	31,190	1,363	32,553	13·13	469,653 45
Needlework Schools (*Arbeitschulen*).	320	322	7,827	13,624	7,336	20,960	2·53	—
	743	912	58,046	410,695	72,089	482,784	8·18	5,790,301 33

11. TABLE showing the estimated INCOME and EXPENDITURE of the TOWN of ZURICH for its POPULAR SCHOOLS of all Kinds, for the Year 1864; and drawn up by the *Schulpflege* of the Commune of Zurich in September of the preceding Year.

INCOME.	fr.	fr.
Interest on school funds		26,000
Rent of property		1,105
School Fees:		
1. Primary Schools.		
a. Day School:	fr.	
Boys: 630 at 6 fr.	3,780	
Girls: 730 at 6 fr.	4,380	
		8,160
b. Finishing School:		
Boys: 25 at 3 fr.	75	
Girls: 80 at 3 fr.	240	
		315
c. Singing School:		
Boys: 120 at 1 fr.	120	
Girls: 120 at 1 fr.	120	
		240
2. Secondary Schools.		
Boys	3,680	
Girls	5,600	
		9,280
3. Fees from scholars in private schools		100
School fines		8,000
Settlement dues		12,000
State grant		4,000
		69,200

EXPENDITURE.	fr.
Teachers' Salaries:	
1. Primary Schools.	
a. Day School:	
15 masters at from 2,000 fr. to 2,600 fr. in boys' school	34,400
5 mistresses at from 1,500 fr., to 2,000 fr., and 12 masters at from 2,000 fr. to 2,400 fr. in girls' school	35,200
Instructresses in needlework	8,750
b. Finishing School:	
Masters	2,900
Mistresses and Instruction in needlework	840
c. Singing School:	500
2. Secondary Schools:	
Masters at from 2,400 fr. to 2,800 fr., and assistants, in boys' school	20,000
Masters at 2,800 fr., assistants, and instruction in needlework, in girls' school	19,920
3. Instruction in gymnastics	1,000
Retiring pensions	18,895
Apparatus and maps	1,800
Writing materials and books	500
Cleaning and warming	6,000
Building and repairs	6,000
Ground rents	2,400
Administration	4,400
Sundries (office expenses, printing, &c.)	5,000
	168,505

BALANCED ACCOUNT.

	fr.
Expenditure for 1864	168,505
Income for 1864	69,200
Excess of expenditure over income	99,305
Deduct surplus from preceding year	12,000
Actual deficit for 1864 *	87,305

* This estimated deficit is made up by a municipal rate of from 76 centimes to 1 franc on every 1,000 francs of assessed property of each inhabitant of the town of Zurich.

PROGRAMMES AND WORK PLANS.

1. PROGRAMMES of the SCHOOL-WORK in Mathematics, Natural Sciences, Philosophy, History, Music, and Drawing, in the French Lycées, for the Year 1865–1866. (*See pages* 470, 478, 480, 505, *of foregoing Report.*)

PROGRAMMES D'ENSEIGNEMENT DES LYCÉES IMPÉRIAUX, ANNÉE SCOLAIRE 1865–1866.

SCIENCES MATHÉMATIQUES.

CLASSE DE MATHÉMATIQUES ÉLÉMENTAIRES. (DEUXIÈME ANNÉE.)

ARITHMÉTIQUE.

On reprendra rapidement le Programme N° 2 de la Classe de Troisième, en le complétant par quelques leçons sur les propriétés des nombres premiers, les fractions décimales périodiques, les erreurs relatives et l'extraction des racines.

Algèbre élémentaire.

Révision et compléments des premières notions données dans la Classe de Seconde (Programme N° 4).

Discussion des formules qui résolvent un système d'équations du premier degré à deux inconnues. Exercices.

Équation du second degré à une inconnue. Double solution. Valeurs imaginaires.

Propriétés des trinômes du second degré.

Des questions de maximum et de minimum qui peuvent se résoudre par les équations du second degré.

Principales propriétés des progressions arithmétiques et des progressions géométriques.

Théorie des logarithmes déduite des progressions.

Logarithmes dont la base est 10. Tables. De la caractéristique.

Introduction des caractéristiques négatives pour étendre aux nombres plus petits que 1 les calculs logarithmiques.*

Usage des tables.

Intérêts composés et annuités. Application des logarithmes à ces questions.

Géométrie.

Géométrie plane.

On reprendra rapidement le Programme N° 3 de la Classe de Troisième et le Programme N° 5 de la Classe de Seconde en les complétant sur quelques points, particulièrement sur l'inscription des polygones réguliers (cas du décagone) et la détermination du rapport de la circonférence au diamètre par la méthode des isopérimètres. On terminera cette révision par des exercices et problèmes sur la comparaison des aires : construire un carré équivalent à un polygone donné ; construire un carré dont le rapport à un carré donné soit égal au rapport de deux lignes données ; construire un rectangle équivalent à un carré donné, et dont les côtés adjacents fassent une somme ou aient entre eux une différence donnée ; application à la construction des racines des équations du second degré à une inconnue.

Géométrie dans l'espace.

Du plan et de la ligne droite. Condition pour qu'une droite soit perpendiculaire à un plan.

Propriétés de la perpendiculaire et des obliques menées d'un même point à un plan.

Parallélisme des droites et des plans.

Angle dièdre. Génération des angles dièdres par la rotation d'un plan autour d'une droite. Dièdre droit.

Mesure des angles dièdres.

Propriétés des plans perpendiculaires entre eux.

Angles trièdres. Cas d'égalité et de symétrie.

Propriétés de l'angle trièdre supplémentaire.

Limite de la somme des faces d'un angle polyèdre convexe.

Limites de la somme des angles dièdres d'un angle trièdre. Analogies et différences entre les angles trièdres et les triangles rectilignes.

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* Pour définir les logarithmes des nombres plus petits que 1, il suffit d'étendre à ces nombres la propriété fondamentale des logarithmes : Soit a un nombre plus petit que 1, et soit P le produit $a \times 10^n$ supposé supérieur ou au moins égal à 1, P aura un logarithme, et si l'on convient d'étendre à ce produit la propriété fondamentale, on aura log a ou $\log \frac{P}{10^n} = \log P - n$.

Ainsi *on convient d'appeler logarithme de* a *le logarithme de* P, *diminuéde* n. En faisant porter cette soustraction sur la caractéristique seule, on voit quecelle-ci contiendra un nombre d'unités *négatives* égal au rang qu'occupe, à droite de la virgule, le premier chiffre significatif de a.

Des polyèdres. Prisme. Parallélipipède, cube, pyramide. Sections planes, parallèles, du prisme et de la pyramide.

Mesure des volumes. Volume du parallélipipède, du prisme, de la pyramide, du tronc de pyramide à bases parallèles, du tronc de prisme triangulaire.

De la symétrie dans les polyèdres. Plan de symétrie. Centre de symétrie.*

Comparaison des faces, des angles dièdres, des angles polyèdres homologues de deux polyèdres symétriques. Equivalence de leurs volumes.

Polyèdres semblables.†

Cas de similitude de deux pyramides triangulaires.

Rapport des volumes de deux polyèdres semblables. Pôle de similitude de deux polyèdres semblables et semblablement placés.

Les corps ronds. Cylindre droit à base circulaire. Mesure de la surface latérale et du volume. Extension aux cylindres droits à base quelconque.

Cône droit à base circulaire. Sections parallèles à la base. Surface latérale du cône, du tronc de cône à bases parallèles. Volume du cône, de tronc de cône à bases parallèles.

Sphère. Sections planes; grands cercles; petits cercles. Pôles d'un cercle. Étant donnée une sphère, trouver son rayon par une construction plane.

Plan tangent. Angle de deux arcs de grand cercle.

Notions sur les triangles sphériques: leur analogie parfaite avec les angles trièdres.

Mesure de la surface engendrée par une ligne brisée régulière tournant autour d'un axe mené dans son plan et par son centre. Aire de la zone, de la sphère entière. Exercices.

Mesure du volume engendré par un triangle tournant autour d'un axe mené dans son plan par un de ses sommets. Application au secteur polygonal régulier tournant autour d'un axe mené dans son plan et par son centre. Volume du secteur sphérique, de la sphère entière, du segment sphérique. Exercices. Volume approché d'un solide limité par une surface quelconque.

Notions sur quelques courbes.

Définition de l'ellipse par la propriété des foyers. Tracé de la courbe par points et d'un mouvement continu. Axes. Sommets. Rayons vecteurs.

Définition générale de la tangente à une courbe.

Les rayons vecteurs menés des foyers à un point de l'ellipse font avec la tangente en ce point, et d'un même côté de cette ligne, des angles égaux.

Mener la tangente à l'ellipse par un point pris sur la courbe, par un point extérieur. Normale à l'ellipse.

Définition de la parabole par la propriété du foyer et de la directrice. Tracé de la courbe par points et d'un mouvement continu. Axe. Sommet. Rayon vecteur.

La tangente fait des angles égaux avec la parallèle à l'axe et le rayon vecteur menés par le point de contact.

Mener la tangente à la parabole par un point pris sur la courbe, par un point extérieur. Normale. Sous-normale.

Relation entre le carré d'une ordonnée perpendiculaire à l'axe et la distance de cette ordonnée au sommet.

Définition de l'hélice, considérée comme résultant de l'enroulement du plan d'un triangle rectangle sur un cylindre droit à base circulaire. Pas de l'hélice.

La tangente à l'hélice fait avec l'arête du cylindre un angle constant.

Construire la projection de l'hélice et de la tangente sur un plan perpendiculaire à la base du cylindre.

Trigonométrie rectiligne.

Lignes trigonométriques. Relations entre les lignes trigonométriques d'un même angle. Expression du sinus et du cosinus en fonction de la tangente.

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* L'étude de la symétrie par rapport à un point se ramène à celle de la symétrie par rapport à un plan, en imprimant une rotation de 180° à l'une des deux figures autour d'un axe perpendiculaire à ce plan et passant par le centre de symétrie.

† On appelle ainsi ceux qui sont compris sous un même nombre de faces semblables chacune à chacune, et dont les angles polyèdres homologues sont égaux.

Formules relatives au sinus, cosinus et tangentes de la somme et de la différence de deux arcs.

Expressions de sin $2a$, cos $2a$ et tang $2a$. Connaissant cos a ou sin a, calculer sin $\frac{1}{2}a$ et cos $\frac{1}{2}a$.

Rendre calculable par logarithmes la somme de deux lignes trigonométriques, sinus, cosinus et tangente.

Notions sur la construction des tables trigonométriques. Usage des tables.

Relation entre les angles et les côtés d'un triangle rectangle ou d'un triangle quelconque.

Résolution des triangles rectangles.

Résolution des triangles quelconques dans les quatre cas qui peuvent se présenter. Déterminer l'aire du triangle en fonction des données.

Application de la trigonométrie à diverses questions que présente le levé des plans : distance à un point inaccessible. Mesure des hauteurs. Trois points, A, B, C, étant donnés sur un plan, déterminer un quatrième point d'où les distances AB et BC ont été vues sous des angles qu'on a mesurés.

Éléments de Géométrie descriptive.

Insuffisance du dessin ordinaire pour la représentation des corps. Utilité d'une méthode géométrique qui, par des opérations graphiques exécutées sur un seul et même plan, fasse connaître exactement la forme et la position d'une figure à trois dimensions.

Projection d'un point, d'une droite, d'une ligne quelconque sur un plan. Plan de projection.

Traces d'une droite. Vraie longueur de la droite qui joint deux points donnés par leurs projections.

Angles d'une droite avec les plans de projection.

Représentation d'un plan par ses traces. Angles d'un plan avec les plans de projection.

Méthode des rabattements. Exercices.

Intersection des deux plans. Intersection d'une droite et d'un plan.

Distance d'un point à un plan. Distance d'un point à une droite.

Angle de deux droites. Angle d'une droite et d'un plan. Angle de deux plans.

Projections d'un prisme, d'une pyramide, d'un cylindre, d'un cône à base circulaire, exécutées sur des objets réels.

Sections planes des polyèdres.

Notions sur la méthode des plans cotés.

Cosmographie.*

Premières apparences que présente l'aspect du ciel.

Ascensions droites et déclinaisons des étoiles. Description du ciel. Constellations et principales étoiles.

De la terre. Longitudes et latitudes géographiques.

Valeurs numériques des degrés mesurés en France, en Laponie, au Pérou, et rapportés à l'ancienne toise. Leur allongement à mesure qu'on s'approche des pôles ; on en conclut que la terre est aplatie aux pôles.

Cartes géographiques. Notions sur les divers systèmes de projections.

Du soleil. Mouvement annuel apparent.

Diamètre apparent du soleil. Mouvement elliptique. Principe des aires.

Notions sur la mesure du temps. Année tropique. Calendrier.

Distance du soleil à la terre. Rapport du volume du soleil à celui de la terre. Rapport des masses.

Taches du soleil. Rotation du soleil sur lui-même.

Inégalité des jours et des nuits. Saisons.

Idée de la précession des équinoxes.

Mouvements réels de la terre.

De la lune. Phases.

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* Ce cours doit être très-élémentaire et *surtout descriptif*.

Révolutions sidérale et synodique. Orbite décrite par la lune autuor de la terre.

Distance de la lune à la terre. Rapport du volume de la lune à celui de la terre. Rapport des masses.

Taches. Rotation. Aperçu sur la constitution physique de la lune.

Éclipses de lune et de soleil.

Des planètes. Lois de Képler. Énoncé du principe de la gravitation universelle. Notions sur les planètes principales.

Grand nombre de très-petites planètes situées entre Mars et Jupiter.

Notions sur les comètes. Comètes périodiques les plus célèbres.

Notions d'astronomie sidérale : distance des étoiles à la terre. Etoiles doubles. Etoiles changeantes et colorées. Nébuleuses. Voie lactée.

Notions sur le phénomène des marées.

Mécanique.*

Éléments de statique.

Notions sur les forces. Condition d'égalité de deux forces. Leur évaluation numérique. Comparaison des forces aux poids à l'aide du dynamomètre.

On admet que deux forces égales et contraires, appliquées à deux points liés par une droite invariable de longueur, et agissant dans la direction de cette droite, se font équilibre. Translation du point d'application d'une force en un point quelconque de sa direction, qu'on suppose lié invariablement au premier.

Composition de deux forces appliquées à un même point. Théorème des moments par rapport à un point pris dans le plan des forces.

Composition d'un nombre quelconque de forces appliquées à un même point. Condition d'équilibre.

Composition de deux forces parallèles. Couple.

Composition d'un nombre quelconque de forces parallèles. Centre des forces parallèles.

Centre de gravité ; sa recherche dans quelques cas simples : triangle et pyramide.

Composition d'un système quelconque de forces appliquées à un corps solide. Leur réduction à deux forces, dont l'une est appliquée à un point pris à volonté. Condition générale de l'équilibre.

Des machines simples.

Levier. Condition générale d'équilibre du levier. Relation entre la puissance et la résistance.

Des balances. Balance ordinaire, balance romaine, bascule du commerce.

Poulie. Équilibre de la poulie fixe. Équilibre de la poulie mobile. Moufles.

Treuil. Condition générale d'équilibre du treuil. Relation entre la puissance et la résistance.

Plan incliné. Équilibre d'un corps placé sur un plan incliné.

Éléments de cinématique et de dynamique.

Mouvement rectiligne uniforme. Vitesse.

Mouvement rectiligne varié. Vitesse moyenne. Vitesse à un instant quelconque.

Mouvement rectiligne uniformément varié. Accélération.

De l'accélération à un instant quelconque dans le mouvement rectiligne varié.

Composition de deux mouvements simultanés rectilignes, uniformes ou uniformément variés.

Mouvement de rotation uniforme autour d'un axe fixe. Vitesse angulaire.

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* Dix-huit leçons environ.

Loi de l'inertie.

Loi du mouvement relatif.* On en déduit qu'une force constante, agissant sur un point matériel qui part due repos ou qu est animé d'une vitesse initiale de même direction que la force, lui imprime un mouvement uniformément varié. Réciproque.

Deux forces constantes sont proportionnelles aux accélérations qu'elles produisent, en agissant séparément sur un même point matériel qui part du repos, ou qui est animé d'une vitesse initiale de même direction que la force.

De la masse. Sa mesure au moyen du poids.

Notions sur le travail des forces.

Ce qu'on apelle travail d'une force constante appliquée à un point dont le déplacement est rectiligne. Unité de travail.

Faire voir que, dans les machines simples, à l'état de mouvement uniforme, et sollicitées uniquement par une puissance et une résistance, le travail moteur est égal au travail résistant.†

Influence des résistances dites passives. Dans la pratique, le travail moteur est toujours plus grand que le travail résistant utile.

SCIENCES PHYSIQUES.

Classe de Mathématiques Élémentaires. (Deuxième Année.) Physique.

Préliminaires.

Divisions de la physique.

Mobilité, inertie, forces. Mouvement uniforme. Mouvement uniformément varié. Proportionnalité des forces constantes aux accélérations qu'elles impriment à un même mobile. Masses. Mesure des forces constantes. Enoncé de la règle du parallélogramme des forces et de la composition de deux forces parallèles. Centre des forces parallèles.

Pesanteur.

Direction de la pesanteur. Centre de gravité. Poids.

Lois de la chute des corps. Machine d'Atwood. Appareil de M. Morin.

Pendule. Observations de Galilée. Intensité de la pesanteur.

Balance.

Notions sur les divers états des corps.

Principe d'égalité de pression dans les fluides. Surface libre des liquides pesants en équilibre. Pression sur le fond des vases. Presse hydraulique.

Vases communiquants.

Principe d'Archimède. Poids spécifiques. Aréomètres.

Pesanteur de l'air. Baromètre.

Loi de Mariotte. Manomètres.

Machine pneumatique. Pompes. Siphons. Aérostats.

Chaleur.

Dilatation des corps par la chaleur.

Construction et usage des thermomètres.

Notions sur les coefficients de dilatation des solides, des liquides et des gaz. Leurs usages.

Poids spécifiques des gaz (procédé de M. Regnault.)

Chaleur rayonnante. Expériences de Melloni.

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* On admet ces deux lois comme résultats de l'expérience.

† Dans le cas de la poulie mobile, on supposera les cordons parallèles.

Notions sur la conductibilité des corps. Procédés d'Ingenhouz. Détermination de la chaleur spécifique des solides et des liquides par la méthode des mélanges.

Fusion et solidification. Chaleur latente. Mélanges réfrigérants.

Formation des vapeurs dans le vide. Vapeurs saturées et non saturées. Maximum de tension. Mesure du maximum de tension de la vapeur d'eau à diverses températures par la méthode de Dalton. Tables.

Mélange des gaz et des vapeurs.

Evaporation. Ebullition. Distillation.

Chaleur latente des vapeurs. Froid produit par l'évaporation.

Machines à vapeur. Kilogrammètre. Cheval-vapeur.

Hygrométrie. Rosée.

Climats. Température. Influence de l'altitude, de la position sur les continents et les îles. Lignes isothermes. Distribution annuelle de la température.

Vents réguliers et irréguliers.

Électricité et Magnétisme.

Développement de l'électricité par frottement. Corps conducteurs et non conducteurs.

Enoncé de la loi des attractions et répulsions électriques.

L'électricité se porte à la surface des corps et s'accumule vers les pointes.

Electricité par influence. Electroscopes. Electrophore. Machine électrique.

Condensateur. Bouteille de Leyde et batterie. Électromètre condensateur.

Electricité atmosphérique. Foudre. Paratonnerre.

Attraction qui s'exerce entre l'aimant et le fer. Pôles des aimants. Définition de la déclinaison et de l'inclinaison. Boussole. Distribution du magnétisme terrestre. Procédés d'aimantation.

Expériences de Galvani et de Volta. Pile voltaïque. Diverses modifications de cet appareil. Effets physiologiques, mécaniques, physiques et chimiques. Galvanoplastie. Dorure. Argenture.

Expériences d'Œrstedt. Construction et usages du galvanomètre.

Expériences qui constatent l'action des courants sur les courants et des courants sur les aimants. Solénoïdes. Assimilation des aimants aux solénoïdes.

Aimantation par les courants. Télégraphes. Thermo-multiplicateur.

Expériences fondamentales sur l'induction électrique. Appareil de Pixii et de Clarke.

Acoustique.

Production du son. Vitesse de transmission dans l'air.

Intensité du son. Hauteur du son. Sirène.

Vibrations des cordes. Gamme et intervalles musicaux.

Optique.

Propagation de la lumière dans un milieu homogène. Ombre. Pénombre. Mesure des intensités relatives de deux lumières.

Lois de la réflexion. Miroirs plans. Miroirs sphériques, concaves et convexes.

Lois de la réfraction. Prismes. Lentilles.

Décomposition et recomposition de la lumière.

Spectre solaire.

Vision.

Chambre noire. Microscope solaire. Loupe. Microscope composé. Lunette astronomique. Télescope de Newton. Lunette de Galilée.

Actions chimiques produites par la lumière. Daguerréotype. Photographie.

CHIMIE.

Cohésion et ses effets. Cristallisation. Isomorphisme et dimorphisme.

Formation des corps composés : synthèse. Leur décomposition : analyse.

Affinité et ses modifications.

Corps simples. Métalloïdes et métaux.

Corps composés. Acides, bases, corps neutres, sels.

Principes de la nomenclature.

Proportions multiples.

Oxygène. Combustion. Exemples de combustion vive et de combustion lente. Chaleur dégagée par la combustion des principaux corps combustibles.

Hydrogène. Eau. Analyse et synthèse de l'eau. Eaux potables.

Azote. Air atmosphérique. Analyse qualitative et quantitative de l'air.

Équivalents chimiques.

Carbone. Acide carbonique. Synthèse de cet acide. Sa formation par les animaux. Sa décomposition par les plantes. Oxyde de carbone. Hydrogène bicarboné. Gaz de l'éclairage. Flammes. Lampe de sûreté.

Oxydes d'azote. Acide azotique. Ammoniaque.

Soufre. Acide sulfureux. Acide sulfurique. Hydrogène sulfuré.

Phosphore. Acide phosphorique. Hydrogène phosphoré.

Chlore. Acide chlorhydrique. Eau régale.

Classification des métalloïdes en familles naturelles. Rappeler les principaux composés qu'ils forment entre eux. Donner leur formule.

Métaux en général. Leurs propriétés et leur classification.

Alliages.

Action de l'oxygène, de l'air sec et de l'air humide sur les métaux. Action du soufre et du chlore.

Oxydes métalliques. Action de la chaleur, du carbone, de l'eau. Préparation générale des oxydes métalliques. Potasse, soude et chaux.

Sulfures. Chlorures. Sel marin.

Notions sommaires de métallurgie. Fer, fontes et aciers. Plomb et cuivre. Etain et zinc. Argent.

Sels. Leurs propriétés générales. Lois de leur composition. Lois de Berthollet.

Principaux genres de sels. Carbonates : carbonate de potasse, de soude et de chaux. Sulfates : aluns. Azotates : nitre et poudre.

Un sel étant donné parmi les sels usuels, montrer comment on en reconnaît le genre et l'espèce.

Classe de Mathématiques Spéciales.

Arithmétique.—Révision.

Numération décimale.

Addition et soustraction des nombres entiers.

Multiplication des nombres entiers. Le produit de plusieurs nombres entiers ne change pas, quand on intervertit l'ordre des facteurs. Pour multiplier un nombre par un produit de plusieurs facteurs, il suffit de multiplier successivement par les facteurs de ce produit.

Division des nombres entiers. Pour diviser un nombre par un produit de plusieurs facteurs, il suffit de diviser successivement par les facteurs de ce produit.

Restes de la division d'un nombre entier par 2, 3, 5, 9. Caractères de divisibilité par chacun de ces nombres.

Définition des nombres premiers et des nombres premiers entre eux. Trouver le plus grand commun diviseur de deux nombres. Tout nombre qui divise un produit de deux facteurs, et qui est premier avec l'un des facteurs, divise l'autre.

Décomposition d'un nombre en ses facteurs premiers. En déduire le plus petit nombre divisible par des nombres donnés.

Fractions ordinaires. Une fraction ne change pas de valeur quand on multiplie ou quand on divise ses deux termes par un même nombre. Réduction d'une fraction à sa plus simple expression. Réduction de plusieurs fractions au même dénominateur. Plus petit dénominateur commun.

Opérations sur les fractions ordinaires.

Nombres décimaux. Opérations. Comment on obtient un produit et un quotient à une unité près d'un ordre décimal donné. Erreurs relatives correspondantes des données et du résultat.

Réduire une fraction ordinaire en fraction décimale. Quand le dénominateur

d'une fraction irréductible contient d'autres facteurs premiers que 2 et 5, la fraction ne peut être convertie exactement en décimales, et le quotient qui se prolonge indéfiniment est périodique.

Étant donnée une fraction décimale périodique simple ou mixte, trouver la fraction ordinaire génératrice.

Système des mesures légales. Mesures de longueur. Mètre; ses divisions; ses multiples. Rapport de l'ancienne toise de six pieds au mètre. Convertir en mètres un nombre donné de toises.

Mesures de superficie, de volume et de capacité.

Mesures de poids. Monnaies. Titre et poids des monnaies de France. Tables de conversion des anciennes mesures en mesures légales.

Formation du carré et du cube de la somme de deux nombres. Extraction de la racine carrée d'un nombre entier. Indication sommaire de la marche à suivre pour l'extraction de la racine cubique.

Carré et cube d'une fraction. Racine carrée d'une fraction ordinaire et décimale à une unité près d'un ordre décimal donné.

Rapports des grandeurs concrètes. Dans une suite de rapports égaux, la somme des numérateurs et celle des dénominateurs forment un rapport égal aux premiers.

Notions générales sur les grandeurs qui varient dans le même rapport ou dans un rapport inverse. Solution, par la méthode dite de réduction à la unité, des questions les plus simples dans lesquelles on considère de telles quantités. Mettre en évidence les rapports des quantités de même nature qui entrent dans le résultat final, et en conclure la règle générale à suivre pour écrire immédiatement la solution demandée.

Intérêts simples. Formule générale qui fournit la solution de toutes les questions relatives aux intérêts simples. De l'escompte commercial.

Partager une somme en parties proportionnelles à des nombres donnés. Exercices.

Usage des tables de logarithmes pour abréger les calculs de multiplication et de division, l'élévation aux puissances et l'extraction des racines.*

Emploi de la règle à calcul, borné à la multiplication et à la division.

Géométrie.—Révision.

Figures planes.

Ligne droite et plan. Ligne brisée. Ligne courbe.

Lorsque deux droites partent d'un même point, suivant des directions différentes, elles forment une figure qu'on appelle angle. Génération des angles par la rotation d'une droite autour d'un de ses points.

Angles droit, aigu, obtus. Par un point pris sur une droite, on ne peut élever qu'une seule perpendiculaire à cette droite.

Angles adjacents. Angles opposés par le sommet.

Triangles. Cas d'égalité les plus simples.

Propriétés du triangle isocèle.

Propriétés de la perpendiculaire et des obliques, menées d'un même point à une droite. Cas d'égalité des triangles rectangles.

Droites parallèles. Lorsque deux parallèles sont recontrées par une sécante, les quarte angles aigus qui en résultent sont égaux entre eux, ainsi que les quarte angles obtus. Dénominations attribuées à ces divers angles. Réciproques.†

Angles dont les côtés sont parallèles ou perpendiculaires. Somme des angles d'un triangle et d'un polygone quelconque.

Parallélogrammes. Propriétés de leurs côtés, de leurs angles et de leurs diagonales.

De la circonférence du cercle. Dépendance mutuelle des arcs et des cordes.

Le rayon perpendiculaire à une corde divise cette corde et l'arc sous-tendu, chacun en deux parties égales.

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* On se bornera à l'usage des tables, sans entrer dans aucun détail relatif à leur construction.

† On admettra qu'on ne peut mener par un point donné qu'une seule parallèle à une droite.

Dépendance mutuelle des longueurs des cordes et de leurs distances au centre. Condition pour qu'une droite soit tangente à une circonférence. Arcs interceptés par des cordes parallèles.

Conditions du contact et de l'intersection de deux cercles.

Mesure des angles. Si des sommets de deux angles on décrit deux arcs de cercle d'un même rayon, le rapport des angles sera égal à celui des arcs compris entre leurs côtés.*

Angles inscrits. Évaluation des angles en degrés, minutes et secondes.

Problèmes. Usage de la règle et du compas dans les constructions sur le papier. Vérification de la règle.

Problèmes élémentaires sur la construction des angles et des triangles.

Tracé des perpendiculaires et des parallèles. Abréviation des constructions au moyen de l'équerre et du rapporteur. Vérification de l'équerre.

Division d'une droite et d'un arc en deux parties égales. Décrire une circonférence qui passe par trois points donnés. D'un point donné hors d'un cercle mener une tangente à ce cercle. Mener une tangente commune à deux cercles. Décrire sur une ligne donnée un segment de cercle capable d'un angle donné.

Lignes proportionnelles.† Toute parallèle à l'un des côtés d'un triangle divise les deux autres côtés en parties proportionnelles. Réciproque. Propriétés de la bissectrice de l'angle d'un triangle.

Polygones semblables. En coupant un triangle par une parallèle à l'un de ses côtés, on détermine un triangle partiel semblable au premier. Conditions de similitude des triangles.

Décomposition des polygones semblables en triangles semblables. Rapport des périmètres.

Relations entre la perpendiculaire abaissée du sommet de l'angle droit d'un triangle rectangle sur l'hypoténuse, les segments de l'hypoténuse, l'hypoténuse elle-même et les côtés de l'angle droit.

Relations entre le carré du nombre qui exprime la longueur du côté d'un triangle opposé à un angle droit, aigu ou obtus, et les carrés des nombres qui expriment les longueurs des deux autres côtés.

Si d'un point pris dans le plan d'un cercle on mène des sécantes, le produit des distances de ce point aux deux points d'intersection de chaque sécante avec la circonférence est constant, quelle que soit la direction de la sécante. Cas où elle devient tangente.

Diviser une droite donnée en parties, égales, ou en parties proportionnelles à des lignes données. Trouver une quatrième proportionnelle à trois lignes ; une moyenne proportionnelle entre deux lignes.

Construire, sur une droite donnée, un polygone semblable à un polygone donné.

Polygones réguliers. Tout polygone régulier peut être inscrit et circonscrit au cercle.

Le rapport des périmètres de deux polygones réguliers, d'un même nombre de côtés, este le même que celui des rayons des cercles circonscrits.‡

Le rapport d'une circonférence à son diamètre est un nombre constant.

Inscrire dans un cercle de rayon donné un carré, un hexagone régulier. Manière d'évaluer le rapport approché de la circonférence au diamètre, en calculant les périmètres des polygones réguliers de 4, 8, 16, 32...côtés, inscrits dans un cercle de rayon donné.

De l'aire des polygones et de celle du cercle. Mesure de l'aire du rectangle ; du parallélogramme ; du triangle ; du trapèze ; d'un polygone quelconque. Méthodes de la décomposition en triangles et en trapèzes rectangles.

Relations entre le carré construit sur le côté d'un triangle, opposé à un angle droit ou aigu ou obtus, et les carrés construits sur les deux autres côtés.

Le rapport des aires de deux polygones semblables est le même que celui des carrés des côtés homologues.

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* La proposition étant démontrée pour le cas où il y a entre les arcs une commune mesure, quelque petite qu'elle soit, sera, par cela même, considérée comme générale.

† En conservant les énoncés habituels, on devra remplacer, dans les démonstrations, l'algorithme des proportions par l'égalité des rapports.

‡ La longueur de la circonférence de cercle sera considérée, sans démonstration, comme la limite vers laquelle tend le périmètre d'un polygone inscrit dans cette courbe, à mesure que ses côtés diminuent indéfiniment.

Aire d'un polygone régulier. Aire d'un cercle, d'un secteur et d'un segment de cercle. Rapport des aires de deux cercles de rayons différents.

*Figures dans l'espace.**

Du plan et de la ligne droite. Deux droites qui se coupent déterminent la position d'un plan. Condition pour qu'une droite soit perpendiculaire à un plan.

Propriétés de la perpendiculaire et des obliques menées d'un même point à un plan.

Parallélisme des droites et des plans.

Lorsque deux plans se rencontrent, la figure que forment ces plans, terminés à leur intersection commune, s'appelle *angle dièdre*. Génération des angles dièdres par la rotation d'un plan autour d'une droite. Dièdre droit.

Angle plan correspondant à l'angle dièdre. Le rapport de deux angles dièdres est le même que celui de leurs angles plans.

Plans perpendiculaires entre eux. Si deux plans sont perpendiculaires à un troisième, leur intersection commune est perpendiculaire à ce troisième.

Angles trièdres. Chaque face d'un angle trièdre est plus petite que la somme des deux autres.

Si l'on prolonge les arêtes d'un angle trièdre au delà du sommet, on forme un nouvel angle trièdre qui ne peut lui être superposé, bien qu'il soit composé des mêmes éléments. (On se bornera à cette simple notion.)

Des polyèdres. Parallélipipède. Mesure du volume du parallélipipède rectangle, du parallélipipède quelconque, du prisme triangulaire, du prisme quelconque.

Pyramide. Mesure du volume de la pyramide triangulaire, de la pyramide quelconque. Volume du tronc de pyramide à bases parallèles.

Exercices numériques.

Polyèdres semblables.†

En coupant une pyramide par un plan parallèle à sa base, on détermine une pyramide partielle semblable à la première. Deux pyramides triangulaires qui ont un angle dièdre égal, compris entre deux faces semblables et semblablement placées, sont semblables. (On se bornera à ce seul cas de similitude.)

Décomposition des polyèdres semblables en pyramides triangulaires semblables. Rapport de leurs volumes. Exercices numériques.

Cône droit à base circulaire. Sections parallèles à la base. Surface latérale du cône, du tronc de cône à bases parallèles. Volume du cône, du tronc de cône à bases parallèles.‡

Cylindre droit à base circulaire. Mesure de la surface latérale et du volume. Extension aux cylindres droits à base quelconque.

Sphère. Sections planes, grands cercles, petits cercles. Pôles d'un cercle. Étant donnée une sphère, trouver son rayon.

Plan tangent.

Mesure de la surface engendrée par une ligne brisée régulière, tournant autour d'un axe mené dans son plan et par son centre. Aire de la zone; de la sphère entière.

Mesure du volume engendré par un triangle tournant autour d'un axe mené dans son plan, par un de ses sommets. Application au secteur polygonal régulier, tournant autour d'un axe mené dans son plan et par son centre. Volume du secteur sphérique; de la sphère entière.

Complément.

Angles polyèdres.

Chacun des angles plans qui composent un angle trièdre est moindre que la somme des deux autres.

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* Pour faire mieux comprendre les questions de géométrie dans l'espace et leurs applications, on aura recours à des modèles en relief.

† On appelle ainsi ceux qui sont compris sous un même nombre de faces semblables chacune à chacune, et dont les angles polyèdres homologues sont égaux.

‡ L'aire du cône (ou du cylindre) sera considérée, sans démonstration, comme la limite vers laquelle tend l'aire de la pyramide inscrite (ou du prisme inscrit), à mesure que ses faces diminuent indéfiniment.

La somme des angles plans qui forment un angle polyèdre convexe est toujours moindre que quatre angles droits.

Si deux angles trièdres sont formés des mêmes angles plans, les angles dièdres compris entre les angles plans égaux sont égaux.

Figures symétriques.

Plan de symétrie. Centre de symétrie. Dans deux polyèdres symétriques les faces homologues sont égales chacune à chacune, et l'inclinaison de deux faces adjacentes, dans un de ces solides, est égale à l'inclinaison des faces homologues dans l'autre.

Deux polyèdres symétriques sont équivalents.

Des figures tracées sur la sphère.

Dans tout triangle sphérique un côté quelconque est plus petit que la somme des deux autres.

Le plus court chemin d'un point à un autre sur la surface de la sphère est un arc de grand cercle.

Mesure de l'angle de deux arcs de grand cercle.

Propriété du triangle polaire ou supplémentaire.

Deux triangles sphériques, situés sur la même sphère ou sur des sphères égales, sont égaux dans toutes leurs parties : 1° lorsqu'ils ont un angle égal compris entre deux côtes égaux chacun à chacun ; 2° lorsqu'ils ont un côté égal adjacent à deux angles égaux chacun à chacun ; 3° lorsqu'ils sont équilatéraux entre eux ; 4° lorsqu'ils sont équiangles entre eux. Dans ces différents cas, les triangles sont égaux ou symétriques.

La somme des angles de tout triangle sphérique est plus grande que deux droits et moindre que six droits.

Un fuseau est à la surface de la sphère comme l'angle de ce fuseau est à quatre angles droits.

Deux triangles sphériques symétriques sont équivalents.

L'aire d'un triangle sphérique est à celle de la sphère entière comme l'excès de la somme de ses angles sur deux angles droits est à huit angles droits. Ce qu'on appelle excès sphérique.

A chaque propriété des triangles ou polygones sphériques correspond une propriété analogue des angles trièdres ou polyèdres.

ALGÈBRE.—RÉVISION.

Calcul algébrique. Emploi des lettres et des signes comme moyen d'abréviation et de généralisation. Termes semblables.*

Addition et soustraction.

Multiplication. Règle des signes.

Division des monômes, exposant *zéro*. Exposé sommaire de la division des polynômes.

Équation du premier degré. Résolution des équations numériques du premier degré à une ou plusieurs inconnue, par la méthode dite *de substitution*.

Interprétation des valeurs négatives dans les problèmes. Usage et calcul des quantités négatives.

Des cas d'impossibilité et d'indétermination.

Formules générales pour la résolution d'un système d'équations du premier degré à *deux* inconnues. Discussion complète de ces formules.

Équation du second degré à une inconnue. Résolution. Double solution. Valeurs imaginaires.

Décomposition du trinôme x^2+px+q en facteurs du premier degré. Relation entre les coefficients et les racines de l'équation : $x^2+px+q=0$.

Des questions de maximum et de minimum qui peuvent se résoudre par les équations du second degré.

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* On ne traitera des quantités négatives qu'à l'occasion des problèmes du premier degré.

COMPLÉMENT.

Notions sur les nombres incommensurables.

Division des polynômes.

Résolution des équations générales du 1er degré à plusieurs inconnues. On développera les calculs relatifs au cas de deux équations et à celui de trois équations. On fera connaître la règle générale pour former le dénominateur commun et pour en déduire les numérateurs. Discussion complète des formules générales propres au cas de deux équations.

Lorsque, dans l'équation $ax^2+bx+c=0$, a tend vers zéro, l'une des racines croît indéfiniment. Calcul numérique des deux racines quand a est très-petit.

Équations réductibles au 2e degré.

Calcul des valeurs *arithmétiques* des radicaux.

Exposants fractionnaires. Exposants incommensurables. Exposants négatifs.

Des progressions et des séries en général.

Progressions arithmétiques et géométriques. Sommation des termes.

Ce qu'on appelle *série*. Convergence et divergence. Les termes d'une série peuvent décroître indéfiniment sans que la série soit convergente.

Une progression géométrique est convergente si la raison est plus petite que l'unité ; divergente, si la raison est plus grande que l'unité.

Une série est convergente lorsque, à partir d'un certain terme, la valeur absolue du rapport d'un terme au précédent est constamment inférieure à un nombre déterminé plus petit que l'unité.

Lorsque les termes d'une série décroissent indéfiniment, et sont alternativement positifs et négatifs, la série est convergente.

Formule du binôme et ses applications.

Arrangements, permutations et combinaisons.

Développement des puissances entières et positives d'un binôme. Terme général.

Développement de $(a+b\sqrt{-1})^m$.

Limite vers laquelle tend $\left(1+\frac{1}{m}\right)^m$ quand m croît au delà de toute limite.

Sommation des piles de boulets.

Des logarithmes et de leurs usages.

En formant toutes les puissances d'un nombre quelconque positif, plus grand ou plus petit que 1, on peut reproduire tous les nombres.

Propriétés générales des logarithmes.

Lorsque des nombres sont en progression géométrique, leurs logarithmes sont en progression arithmétique.

Comment on passe d'un système de logarithmes à un autre système. Logarithmes népériens. Logarithmes vulgaires. Ce qu'on appelle module d'un système de logarithmes.

Usage des logarithmes vulgaires. Caractéristiques. Caractéristiques négatives.

Un nombre étant donné, trouver son logarithme par le moyen des tables de Callet. Un logarithme étant donné, trouver le nombre auquel il appartient. Usage des parties proportionnelles.

Usage de la règle à calcul.

Résolution des équations exponentielles au moyen des logarithmes.

Intérêts composés. Annuités.

Des fonctions dérivées.

Développement d'une fonction entière $f(x)$ suivant les puissances croissantes de h, quand on remplace x par $x+h$. Dérivée d'une fonction entière.

La dérivée d'une fonction quelconque est la limite vers laquelle tend le

rapport de l'accroissement de la fonction à l'accroissement de la variable lorsque celui-ci tend vers zéro.

Dérivée d'une fonction de fonction.

Règles pour trouver la dérivée d'une somme, d'un produit, d'une puissance, d'un quotient de fonctions dont les dérivées sont connues.

Dérivées des fonctions circulaires directes et inverses.

Dérivées de la fonction exponentielle et de la fonction logarithmique.

Une fonction est croissante ou décroissante, suivant que sa dérivée est positive ou négative.

Deux fonctions qui ont des dérivées égales ne peuvent différer que par une constante. Revenir de la dérivée à la fonction primitive, dans les cas où cette opération peut se faire *immédiatement*.

Application de la théorie des dérivées au développement des fonctions $l(1+x)$ et arc tang x en séries convergentes ordonnées suivant les puissances croissantes de x, lorsque cette variable reste comprise entre -1 et $+1$.

Calcul des logarithmes au moyen de la série qui donne le logarithme de $n+1$, quand on connaît celui de n. Calcul des logarithmes népériens. Valeur du module des logarithmes vulgaires. Calcul des logarithmes vulgaires.

Calcul du rapport de la circonférence au diamètre d'après la série arc tang x.*

Théorie des équations.

Comment varie une fonction entière $f(x)$ quand x varie d'une manière continue entre $-\infty$ et $+\infty$.

Lorsque deux nombres a et b substitués dans une fonction entière $f(x)$ donnent des résultats de signes contraires, l'équation $f(x)=0$ a au moins une racine réelle comprise entre a et b. Toute fonction $f(x)$ qui reste continue pour toutes les valeurs de x comprises entre a et b jouit de cette propriété.

Une équation algébrique de degré impair a au moins une racine réelle. Une équation algébrique de degré pair, dont le dernier terme est négatif, a au moins deux racines réelles.

Toute équation algébrique $f(x)=0$, à coefficients réels ou imaginaires de la forme $a+b\sqrt{-1}$, a une racine réelle ou imaginaire de la même forme. (On admettra ce théorème sans démonstration.)

Si a est racine d'une équation algébrique, le premier membre est divisible par $x-a$. Une équation algébrique du degré m a toujours m racines réelles ou imaginaires, et elle ne peut en avoir davantage. Décomposition du premier membre en facteurs du premier degré. Relations entre les coefficients d'une équation algébrique et les racines.

Lorsqu'une équation algébrique, dont les coefficients sont réels, a une racine imaginaire $a+b\sqrt{-1}$, elle a aussi pour racine l'expression conjuguée $a-b\sqrt{-1}$.

Dans une équation algébrique, complète ou incomplète, le nombre des racines positives ne peut pas surpasser le nombre des variations ; conséquence relative au nombre des racines négatives.

Recherche du produit des facteurs du premier degré communs à deux fonctions entières de x. Recherche des racines communes à deux équations dont les premiers membres sont des fonctions entières de l'inconnue.

Comment on reconnaît qu'une équation algébrique a des racines égales, et comment alors on ramène sa résolution à celle d'autres équations de degré moindre dont les racines sont inégales.

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* Partir, par exemple, de l'une des formules $\frac{\pi}{4} = \text{arc tang } \frac{1}{2} + \text{arc tang } \frac{1}{3}$, $\frac{\pi}{4} = 2 \text{ arc tang } \frac{1}{3} + \text{arc tang } \frac{1}{7}$; $\frac{\pi}{4} = 4 \text{ arc tang } \frac{1}{5} - \text{arc tang } \frac{1}{239}$; auxquelles conduit aisément le procédé de Machin rapporté par M. Lacroix dans l'introduction du Traité des calculs différentiel et intégral.

Pour exercer les élèves aux calculs des séries, on leur fera déterminer les logarithmes vulgaires des nombres, depuis 1 jusqu'à 10, depuis 101 jusqu'à 110 et depuis 10001 jusqu'à 10010. On devra aussi leur faire exécuter le calcul du nombre π.

Recherche des racines commensurables d'une équation algébrique à coefficients commensurables.

Des différences.

Différences des divers ordres.

Étant donnés $m+1$ nombres $u_0, u_1, u_2, \ldots u_m$, trouver : 1° l'expression du terme général u_n en fonction du premier terme u^0 et de ses différences successives ; 2° l'expression de $\Delta^n u_o$, en fonction des nombres proposés.

La différence de l'ordre m d'une fonction entière du degré m est constante si la différence de la variable est elle-même constante.

Connaissant les résultats de la substitution de m nombres entiers consécutifs dans une fonction entière du degré m, on obtient facilement, au moyen des différences, les résultas de la substitution de tous les autres nombres entiers positifs ou négatifs. Application au cas d'une fonction entière du troisième degré dont on connaît les valeurs correspondantes aux valeurs $-1, 0, +1$, de la variable.

Formules d'interpolation. Application de la méthode d'interpolation de Newton à la représentation exacte d'une fonction entière $f(x)$ du degré m dont on connaît les valeurs $u_0, u_1, u_2, \ldots u_m$ correspondantes aux valeurs de x, x_0, $x_0 + h$, $x_0 + 2h, \ldots x_0 + mh$. Si la différence h et les quantités $u_0, \Delta u_0, \Delta^2 u_0, \ldots \Delta^m u_0$ sont positives, $x_0 + (m-1)h$ est une limite supérieure des racines positives de l'équation $f(x) = 0$.

Application de la théorie des différences à la résolution numérique des équations.

Séparation des racines d'une équation algébrique par la substitution de différents nombres à l'inconnue. Étude spéciale du cas d'une équation du troisième degré. Substitution de nombres entiers par le moyen des différences. Substitution de nombres équidistants d'*un dixième* entre deux nombres entiers consécutifs ; de nombres équidistants d'*un centième* entre deux nombres consécutifs de dixièmes, etc., soit pour séparer les racines, soit pour en approcher. Ces dernières substitutions s'effectuent au moyen de nouvelles différences, déduites des premières. Usage des constructions graphiques dans l'application de la méthode précédente.

Recherche des racines d'une équation transcendante. Lorsqu'on a substitué des nombres équidistants et assez voisins pour que les différences des résultats puissent être considérées comme égales entre elles à partir d'un certain ordre, on continue l'opération comme s'il s'agissait d'une équation algébrique.

Ayant obtenu, avec un certain degré d'approximation, une racine d'une équation algébrique ou transcendante, en approcher davantage par la méthode de Newton.* Usage des constructions graphiques pour l'application de cette méthode.

Décomposition des fractions rationnelles en fractions simples.

Toute fraction rationnelle $\frac{F(x)}{f(x)}$ est décomposable en une partie entière et en diverses fractions simples. La décomposition ne peut se faire que d'une seule manière. Moyens de l'effectuer quand on connaît les facteurs binômes qui divisent le dénominateur $f(x)$.

Trigonométrie. Trigonométrie rectiligne.

Révision.

Lignes trigonométriques. (On ne considère que les rapports des lignes trigonométriques au rayon.)

Relations entre les lignes trigonométriques d'un même angle. Expressions du sinus et du cosinus en fonction de la tangente.

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* Les élèves exécuteront le calcul d'une racine incommensurable d'une équation numérique du troisième degré ou d'une équation transcendante.

Connaissant les sinus et les cosinus de deux arcs, trouver le sinus et le cosinus de leur somme et de leur différence. Trouver la tangente de la somme ou de la différence de deux arcs, quand on connaît les tangentes de ces deux arcs.

Expressions de sin $2a$, cos $2a$ et tang $2a$. Connaissant cos a, calculer $\sin \frac{1}{2} a$ et $\cos \frac{1}{2} a$.

Rendre calculable par logarithmes la somme de deux lignes trigonométriques, sinus ou cosinus.

Notions sur la construction des tables trigonométriques.

Usage des tables.

Résolution des triangles. Relations entre les angles et les côtés d'un triangle rectangle, ou d'un triangle quelconque.

Résolution des triangles rectangles.

Connaissant un côté et deux angles d'un triangle quelconque, trouver les autres parties, ainsi que la surface du triangle.

Connaissant deux côtés, avec l'angle compris, trouver les autres parties, ainsi que la surface du triangle.

Connaissant les trois côtés, trouver les angles et la surface du triangle.

Applications de la trigonométrie aux différentes questions que présente le levé des plans. (Ces questions ont été énoncées dans le programme de géométrie.)

Complément.

Valeurs des sinus et cosinus des arcs $\frac{\pi}{3}, \frac{\pi}{6}, \cdots ; \frac{\pi}{5}, \frac{\pi}{10}, \cdots$ Le côté du décagone régulier inscrit dans la circonférence est égal à la plus grande partie du rayon *divisé en moyenne et extrême raison*. Construction géométrique. Inscription du polygone régulier de 15 côtés.

Calculer tang $\frac{1}{2} a$ quand tang a est donnée.

Équation du troisième degré que l'on obtient en cherchant sin $\frac{1}{3} a$ quand sin a est donné, ou cos $\frac{1}{3} a$ quand cos a est donné, ou tang $\frac{1}{3} a$ quand tang a est donnée. Examen des racines de cette équation.

Résolution des équations numériques du deuxième et du troisième degré, par le moyen des tables trigonométriques.

Trigonométrie sphérique*.

Formules générales.

Relations fondamentales entre les côtés et les angles d'un triangle sphérique.

$$\cos a = \cos b \cos c + \sin b \sin c \cos A ; \text{ etc.}$$

On en déduit, par la voie de l'élimination,

$$\sin A : \sin B = \sin a : \sin b ; \cos a \sin b - \cos A \sin C = \cos b \cos C,$$

et par la considération du triangle supplémentaire,

$$\cos A = - \cos B \cos C + \sin B \sin C \cos a,$$

Formules relatives aux triangles rectangles.

$$\cos a = \cos b \cos c ; \sin b = \sin a \sin B ;$$
$$\text{tang } c = \text{tang } a \cos B ; \text{ tang } b = \sin c \text{ tang } B.$$

Dans un triangle rectangle, les trois côtés sont moindres que 90°, ou bien deux des côtés sont plus grands que 90° et le troisième est moindre. Un angle et le côté opposé sont tous deux moindres que 90°, ou tous deux plus grands.

Résolution des triangles.

Cas des triangles rectangles.

Cas des triangles obliquangles. 1° On donne les trois côtés a, b, c, ou les trois angles A, B, C. Formules calculables par logarithmes, donnant les valeursdetan $\frac{1}{2} a$ et tang $\frac{1}{2}$ A. 2° On donne deux côtés et l'angle compris, ou deux angles et

* La Trigonométrie sphérique ne fait pas partie des programmes d'admission à l'Ecole polytechnique et à l'École normale pour le concours de 1865 (voir la note de la page 78).

le côté compris. Formules de Delambre et de Népert. 3° On donne deux côtés et un angle de posé l'un à d'eux, ou deux angles et un côté opposé à l'un d'eux. Usage d'un angle auxiliaire pour rendre les formules calculables par logarithmes.

Application.

Connaissant les latitudes et les longitudes de deux points du globe, trouver a distance de ces points.

Application de la Géométrie et de la Trigonométrie au levé des plans.

Révision.

Tracé d'une droite sur le terrain. Mesure d'une portion de droite au moyen de la chaîne. Levé au mètre. Tracé des perpendiculaires. Usage de l'équerre d'arpenteur. Mesure des angles au moyen du graphomètre. Description et usage de cet instrument. Rapporter le plan sur le papier. Échelle de réduction.

Levé à la planchette.

Déterminer la distance à un point inaccessible; la distance entre deux points inaccessibles. Prolonger une ligne droite au delà d'un obstacle qui arrête la vue.

Par trois points donnés, mener une circonférence, lors même qu'on ne peut approcher du centre.

Trois points, A, B, C, étant situés sur un terrain uni et rapportés sur une carte, déterminer sur cette carte le point P d'où les distances AB et BC ont été vues sous des angles qu'on a mesurés.

Notions sur l'arpentage. Cas où le terrain serait limité, dans une de ses parties, par une ligne courbe.

Complément.

Mesure des bases au moyen des règles.*

Mesure des angles. Description et emploi du cercle. Usage de la lunette pour rendre la ligne de visée plus précise. Division du cercle. Verniers.†

Mesure et calcul d'un réseau de triangles. Réduction des angles aux centres des stations.‡

Réduction à l'horizon d'une base mesurée avec la chaîne sur un terrain incliné. Réduction des angles à l'horizon, dans le cas où cette réduction n'est pas faite par l'instrument lui-même.

Usages de la planchette et de la boussole pour le levé des détails.§

Géométrie analytique. Géométrie à deux dimensions.

Des équations et des formules de la géométrie.

Loi de l'homogénéité. Construction des expressions algébriques.

Des coordonnées rectilignes.

Détermination d'un point sur un plan par le moyen de ses coordonnées rectilignes.

Représentation des lieux géométriques pas des équations.

Transformation des coordonnées rectilignes.

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* On enseignera aux élèves à mesurer une base avec précision, au moyen des règles.

† Le *graphomètre* suffit quand on ne peut recourir, pour comparer les résultats, qu'à des procédés graphiques; mais, dès qu'on veut appliquer à cet objet les méthodes rigoureuses que fournit la trigonométrie, il est nécessaire de donner à la mesure des angles toute la précision possible,

‡ On insistera sur la marche à suivre dans le calcul, et l'on en donnera un exemple aux élèves.

§ Tous les instruments mentionnés dans la partie du programme relative au levé des plans devront être mis entre les mains des élèves.

Des équations du premier et du deuxième degré à deux variables.

Construction des équations du premier degré. Problèmes sur la ligne droite. Équation du cercle.

Construction des équations du second degré. Division en trois genres des courbes qu'elles représentent.

Du centre, des diamètres et des axes dans les courbes du second degré.

Réduction de l'équation du second degré à la forme la plus simple, par le changement des coordonnées.*

Des tangentes et des asymptotes.

Le coefficient d'inclinaison, sur l'axe des abscisses, de la tangente á une courbe, est égal à la dérivée de l'ordonnée par rapport à l'abscisse.

Recherche des asymptotes des courbes. Application aux courbes du second degré.

De l'ellipse.

Équation de l'ellipse rapportée à son centre et à ses axes. Les carrés des ordonnées perpendiculaires à l'un des axes sont entre eux comme les produits des segments correspondants formés sur cet axe.

Les ordonnées perpendiculaires au grand axe sont aux ordonnées correspondantes du cercle décrit sur cet axe, comme diamètre, dans le rapport constant du petit axe au grand. Construction de la courbe par points, au moyen de cette propriété.

Foyers, excentricité de l'ellipse. La somme des rayons vecteurs menés à un point quelconque de l'ellipse est constante et égale au grand axe. Description de l'ellipse au moyen de cette propriété.

Directrices. Les distances de chaque point de l'ellipse à l'un des foyers et à la directrice voisine de ce foyer sont entre elles comme la distance des foyers est au grand axe.

Equations de la tangente et de la normale en un point de l'ellipse. Le point où la tangente rencontre un des axes prolongés est indépendant de la grandeur de l'autre axe. Construction de la tangente en un point de l'ellipse, au moyen de cette propriété.

Les rayons vecteurs, menés des foyers à un point de l'ellipse, font avec la tangente en ce point, et d'un même côté de cette ligne, des angles égaux. La normale divise en deux parties égales l'angle des rayons vecteurs. Cette propriété peut servir à mener une tangente à l'ellipse par un point pris sur la courbe ou par un point extérieur.

Diamètres. Les cordes qu'un diamètre divise en parties égales sont parallèles à la tangente menée par l'extrémité de ce diamètre. Cordes supplémentaires. On peut, au moyen des cordes supplémentaires, menur une tangente à l'ellipse par un point donné sur la courbe ou parallèlement à une droite donnée.

Diamètres conjugués. Deux diamètres conjugués sont toujours parallèles à deux cordes supplémentaires, et réciproquement. Limite de l'angle de deux diamètres conjugués. Il y a toujours dans une ellipse deux diamètres conjugués égaux entre eux. La somme des carrés de deux diamètres conjugués est constante. L'air du parallélogramme construit sur deux diamètres conjugués est constante. Construire une ellipse, connaissant deux diamètres conjugués et l'angle qu'ils font entre eux.

Expression de l'aire de l'ellipse en fonction des longueurs de ses axes.

De l'hyperbole.

Équation de l'hyberbole rapportée à son centre et à ses axes. Rapport des carrés des ordonnées perpendiculaires à l'axe transverse.

Foyers et directrices ; tangente et normale ; diamètres ; diamètres conjugués et cordes supplémentaires. Ce qu'on nomme longueur d'un diamètre qui ne

* Les élèves appliqueront ces réductions à une équation numérique du second degré et détermineront la situation des nouveaux axes par rapport aux anciens, au moyen des tables trigonométriques.

rencontre pas l'hyperbole. Les propriétés de ces points et de ces lignes sont analogues dans l'hyperbole et dans l'ellipse.

Asymptotes de l'hyperbole. Les asymptotes coïncident avec les diagonales du parallélogramme formé sur deux diamètres conjugués quelconques. Les portions d'une sécante ou d'une tangente comprises entre l'hyperbole et ses asymptotes sont égales entre elles. Application à la construction de la tangente.

Le rectangle des parties d'une sécante comprises entre un point de la courbe et les asymptotes est égal au carré de la moitié du diamètre auquel la sécante est parallèle.

Forme de l'équation de l'hyperbole rapportée à ses asymptotes.

De la parabole.

Équation de la parabole rapportée à son axe et à la tangente au sommet. Rapport des carrés des ordonnées perpendiculaires à l'axe.

Foyer et directrice de la parabole. Chacun des points de la courbe est également éloigné du foyer et de la directrice. Construction de la parabole.

La parabole peut être considérée comme la limite d'une ellipse dans laquelle le grand axe augmente indéfiniment, tandis que la distance du foyer au sommet voisin reste constante.

Tangente et normale. Sous-tangente et sous-normale. Elles fournissent des moyens de mener la tangente en un point de la courbe.

La tangente fait des angles égaux avec l'axe et avec le rayon vecteur mené au point de contact. Mener, au moyen de cette propriété, une tangente à la parabole : 1°, par un point situé sur la courbe ; 2°, par un point extérieur.

Diamètres. Les cordes qu'un diamètre divise en deux parties égales sont parallèles à la tangente menée à l'extrémité de ce diamètre.

Expression de l'aire d'un segment parabolique.

Des coordonnées polaires.

Passer d'un système de coordonnées rectangulaires à un système de coordonnées polaires, et réciproquement.

Équations des trois courbes du second degré, en coordonnées polaires, le pôle étant situé à un foyer et les angles étant comptés à partir de l'axe qui passe par ce foyer.

Des lignes courbes en général.

Discussions de quelques courbes algébriques et transcendantes. Détermination de la tangente en un de leurs points. Asymptotes des branches infinies.*

Construction des racines réelles des équations de forme quelconque à une inconnue.

Intersection de deux courbes du second degré.

Du nombre de conditions nécessaires pour la détermination d'une courbe du second degré.

Calculer les coordonnées des points communs à deux courbes du second degré. Étant données les équations de deux courbes du second degré, trouver l'equation générale des courbes du second degré qui passent par les quatre points d'intersection des deux premières. Disposer de l'indéterminée que renferme cette équation, de manière qu'elle puisse se décomposer en deux facteurs du premier degré.

Des sections coniques et cylindriques.

Étude des sections planes du cône et du cylindre droit à base circulaire. Section antiparallèle du cône et du cylindre oblique à base circulaire.

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* On consacrera trois ou quatre leçons à la recherche de quelques lieux géométriques.

Géométrie à trois dimensions.

Théorie des projections.

La somme des projections de plusieurs droites consécutives sur un axe est égale à la projection de la ligne résultante. La somme des carrés des projections d'une droite sur trois axes rectangulaires est égale au carré de cette droite. La somme des carrés des cosinus des angles qu'une droite fait avec trois droites rectangulaires est égale à l'unité.

La projection d'une aire plane sur un plan est égale au produit de cette aire par le cosinus de l'angle des deux plans.

Des coordonnées rectilignes.

Représentation d'un point par ses coordonnées. Équations des lignes et des surfaces.

Transformation des coordonnées rectilignes.

De la ligne droite et du plan.

Équations de la ligne droite. Équation du plan. Toute équation du premier degré à trois variables représente un plan.

Trouver les équations d'une droite: 1°, qui passe par deux points donnés; 2°, qui passe par un point donné et qui soit parallèle à une ligne donnée.

Déterminer le point d'intersection de deux droites dont on connaît les équations.

Faire passer un plan: 1°, par trois points donnés; 2°, par un point donné, parallèlement à un plan donné; 3°, par un point et par une droit donnés.

Connaissant les équations de deux plans, trouver les projections de leur intersection.

Mener, par un point donné, une perpendiculaire à une droit donnée; déterminer le pied et la grandeur de cette perpendiculaire (coordonnées rectangulaires).

Connaissant les équations d'une droite, déterminer les angles de cette droite avec les axes des coordonnées (coordonnées rectangulaires).

Trouver l'intersection d'une droite et d'un plan dont on connaît les équations.

Connaissant les coordonnées de deux points, trouver leur distance.

D'un point donné abaisser une perpendiculaire sur un plan; trouver le pied et la grandeur de la perpendiculaire (coordonnées rectangulaires).

Mener, par un point donné, un plan perpendiculaire à une droite donnée (coordonnées rectangulaires).

Trouver l'angle de deux droites dont on connaît les équations (coordonnées rectangulaires).

Connaissant l'équation d'un plan, trouver les angles qu'il fait avec les plans coordonnées (coordonnées rectangulaires).

Déterminer l'angle de deux plans (coordonnées rectangulaires).

Trouver l'angle d'une droite et d'un plan (coordonnées rectangulaires).

Surfaces du second degré.

Elles se divisent en deux classes: les unes ont un centre, les autres n'en ont pas. Coordonnées du centre.

Des plans diamétraux.

Simplification de l'équation générale du second degré par la transformation des coordonnées.

Équations les plus simples de l'ellipsoïde, des hyperboloïdes à une et à deux nappes, des paraboloïdes elliptique et hyberbolique, des cônes et des cylindres du second degré.

Nature des sections planes des surfaces du second degré.

Cône asymptote d'un hyperboloïde.

Sections rectilignes de l'hyperboloïde à une nappe. On peut, sur la surface de l'hyperboloïde à une nappe, tracer deux droites par chacun de ses points:

d'où résultent deux systèmes de génératrices rectilignes de l'hyperboloïde. Deux droites prises dans un même système ne se rencontrent pas, et deux droites de systèmes différents se rencontrent toujours. Toutes les droites situées sur l'hyperboloïde étant transportées au centre, parallèlement à elles-mêmes, s'appliquent exactement sur le cône asymptote. Trois droites d'un même système ne sont jamais parallèles à un même plan. L'hyperboloïde à une nappe peut être engendré par une droite qui se meut en s'appuyant sur trois droites fixes, non parallèles à un même plan; et réciproquement, lorsqu'une ligne droite glisse sur trois droites fixes non parallèles à un même plan, elle engendre un hyperboloïde à une nappe.

Sections rectilignes du paraboloïde hyperbolique. On peut, sur la surface du paraboloïde hyperbolique, tracer deux droites par chacun de ses points: d'où résulte la génération du parabaloïde par deux systèmes de droites. Deux droites d'un même système ne se rencontrent pas, mais deux droites de systèmes différents se rencontrent toujours. Toutes les droites d'un même système sont parallèles à un même plan. Le paraboloïde hyberbolique peut être engendré par le mouvement d'une droite qui glisse sur deux droites fixes, parallèles à un même plan; ou bien par une droite qui glisse sur deux droites fixes, en restant toujours parallèle à un plan donné. Réciproquement, toute surface résultant de l'un de ces deux modes de génération est un paraboloïde hyperbolique.

Discussion d'une équation numérique du second degré à trois variables.

Des surfaces coniques et cylindriques.

Trouver l'équation générale des surfaces coniques et des surfaces cylindriques.

GÉOMÉTRIE DESCRIPTIVE.

Problèmes relatifs au point, à la droite et au plan.

Par un point donné dans l'espace, mener une droite parallèle à une droite donnée et trouver la grandeur d'une partie de cette droite.

Par un point donné, mener un plan parallèle à un plan donné.

Construire le plan qui passe par trois points donnés dans l'espace.

Deux plans étant donnés, trouver les projections de leur intersection.

Une droite et un plan étant donnés, trouver les projections du point où la droite rencontre le plan.

Par un point donné, mener une perpendiculaire à un plan donné, et construire les projections du point de rencontre de la droite et du plan.

Par un point donné, mener une droite perpendiculaire à une droit donnée, et construire les projections du point de rencontre des deux droites.

Changement des plans de projection.

Un plan étant donné, trouver les angles qu'il forme avec les plans de projection.

Deux plans étant donnés, construire l'angle qu'ils forment entre eux.

Deux droites qui se coupent étant données, construire l'angle qu'elles font entre elles.

Construire l'angle formé par une droite et par un plan donnés de position dans l'espace.

Problèmes relatifs aux plans tangents.

Mener un plan tangent à une surface cylindrique ou à une surface conique: 1°, par un point pris sur la surface; 2°, par un point pris hors de la surface; 3°, parallèlement à une droite donnée.

Par un point pris sur une surface de révolution, dont on connaît le méridien, mener un plan tangent à cette surface.

Problèmes relatifs aux intersections de surfaces.

Construire la section faite, sur la surface d'un cylindre droit et vertical, par un plan perpendiculaire à l'un des plans de projection. Mener la tangente à la courbe d'intersection. Faire le développement de la surface cylindrique, et y rapporter la courbe d'intersection, ainsi que la tangente.

Construire l'intersection d'un cône droit par un plan perpendiculaire à l'un des plans de projection. Développement et tangente.

Construire la section droite d'un cylindre oblique. (Pour simplifier les constructions on emploiera la méthode du changement des plans de projection.) Mener la tangente à la courbe d'intersection. Faire le développement de la surface cylindrique, et y rapporter la courbe qui servait de base, ainsi que ses tangentes.

Construire l'intersection d'une surface de révolution par un plan, et les tangentes à la courbe d'intersection. Résondre cette question, lorsque la ligne génératrice est une droite qui ne recontre pas l'axe.

Construire l'intersection de deux surfaces cylindriques et les tangentes à cette courbe.

Construire l'intersection de deux cônes obliques et les tangentes à cette courbe.

Construire l'intersection de deux surfaces de révolution dont les axes se rencontrent.

Mécanique.

Du mouvement d'un point considéré géométriquement.

Mouvement uniforme. Vitesse. Mouvement varié. Vitesse à un instant donné. Comment elle se détermine par le calcul ou par le tracé d'une tangente à une courbe,* quand l'espace est une fonction donnée du temps.

Mouvement uniformément varié. La vitesse s'accroît de quantités proportionnelles aux temps écoulés. L'expérience sur la chute des corps dans le vide en fournit un exemple. Valeur de l'accélération g, dans ce cas. De l'accélération dans le mouvement rectiligne varié en général, quand la vitesse est donnée, en fonction du temps, par une équation ou par une courbe.

Projection sur un axe d'un point mobile dans l'espace. La vitesse de la projection du point est égale à la projection de sa vitesse dans l'espace.

Composition et décomposition des vitesses déduites de la considération des mouvements relatifs. Ce qu'on entend par accélération totale et par accélération tangentielle dans le mouvement curviligne d'un point. Composition et décomposition des accélérations.

De l'effet des forces appliquées à un point matériel libre.

Loi de l'inertie relative au point matériel. Effets divers des forces. Conditions de l'égalité de deux forces, d'après les effets qu'elles produisent sur un même corps ou système matèriel. Comparaison des forces aux poids, à l'aide du dynamomètre. Le kilogramme peut être pris pour unité de force.†

On admet comme principe expérimental que l'effet d'une force sur un point matériel est indépendant du mouvement autérieurement acquis par ce point, c'est-à-dire que le mouvement du point s'obtient par la composition du mouvement rectiligne dû à sa vitesse acquise et du mouvement que la force lui communiquerait s'il partait du repos. Démontrer qu'il résulte de ce principe qu'une force constante, agissant sur un point matériel partant du repos, lui imprime un mouvement uniformément accéléré. Cas où le point matériel possède une vitesse initiale dans le sens de la force ou dans le sens contraire. Réciproquement, si un point matériel est animé d'un mouvement rectiligne uniformément varié, il est soumis à une force constante. Exemples relatifs à la pesanteur. Le mouvement parabolique des projectiles est une autre conséquence du principe énoncé ci-dessus.

Indépendance mutuelle des effets simultanés de plusieurs forces agissant sur un point matériel isolé. Deux forces constantes, appliquées successivement à un même point matériel partant du repos ou animé d'une vitesse initiale de

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* Il arrive souvent que la relation entre les espaces et les temps n'est définie que par des données expérimentales, au moyen d'une table ou du tracé mécanique d'une courbe. On ramène le premier cas au second, en traçant une courbe qui représente la marche des nombres de la table, et on détermine la dérivée qui fait connaître la vitesse, par le tracé de la tangente à la courbe.

† Un même corps pesant ne produit point, en tous les points du globe, le même effet sur un dynamomètre ; mais la différence est très-faible, et peut être négligée dans les applications de la mécanique.

même direction que la force, sont entre elles comme les accélérations qu'elles produisent. Conséquence relative au cas où l'une des forces est le poids même du mobile.

Définition de la masse. Relation entre les forces, les masses et les accélérations. De la force d'inertie. Son expression et ses effets. Sa mesure en kilogrammes pour diverses accélérations. Introduction de la masse dans les équations du mouvement rectiligne ou curviligne d'un point soumis à l'action de la pesanteur ou d'une force constante quelconque. Notions qui en dérivent relativement au travail et à la force vive.

Composition et décomposition des forces appliquées à un même point matériel libre, déduites du principe de l'indépendance des effets simultanés des forces. Conditions de l'équilibre des forces appliquées à un même point. Elle est indépendante de l'état de repos ou de mouvement de ce point.

Du travail des forces appliquées à un point mobile.

Travail élémentaire d'une force appliquée à un point mobile. Deux manières de l'évaluer, suivant qu'on projette la force sur la direction de l'élément du chemin décrit ou l'élément de chemin sur la direction de la force. Travail élémentaire moteur; travail élémentaire résistant. Le travail élémentaire d'une force normale à l'élément du chemin décrit est nul.

Travail total d'une force constante dirigée dans le sens du chemin parcouru, ou qui reste parallèle à elle-même. Travail de la pesanteur dans le mouvement d'un point matériel sur une courbe quelconque.

Travail total d'une force variable dirigée, ou non, dans le sens du chemin décrit par son point d'application: il s'obtient par une quadrature ou à l'aide d'un tracé approximatif. Ce qu'on entend par effort moyen.

Unité de travail, kilogrammètre.

Le travail élémentaire de la résultante de deux ou d'un plus grand nombre de forces est égal à la somme algébrique des travaux élémentaires des composantes. Extension de ce théorème au travail continu des forces.

Théorème des moments. Ce théorème a lieu pour les projections sur un plan quelconque de forces concourantes dans l'espace. Ce qu'on nomme moment d'une force par rapport à un axe.

Quand trois forces se font constamment équilibre, la somme algébrique de leurs travaux est nulle. Extension de ce théorème à l'équilibre d'un nombre quelconque de forces appliquées à un point. Théorème relatif aux moments de ces forces par rapport à un axe quelconque dans l'espace.

Des forces appliquées à un corps solide.

Notions relatives à la solidité des corps. Hypothèse de l'invariabilité des distances mutuelles des éléments de ces corps. Cas où cette hypothèse peut être admise.

On admet qu'on peut, sans changer l'état de repos ou de mouvement d'un corps, transporter le point d'application d'une force en un point quelconque de sa direction, pourvu que le second point soit supposé lié invariablement au premier. Vérification de ce principe au moyen du dynamomètre appliqué aux extrémités d'une corde ou d'une verge soutenant verticalement un poids. Le travail de la force ainsi transportée est aussi le même pour tout déplacement élémentaire de la droite d'application.

Composition et équilibre des forces concourantes appliquées à un corps solide. Cas où les forces sont parallèles. Cas d'un couple.

Le moment de la résultante d'un système de forces parallèles par rapport à un plan quelconque est égal à la somme des moments des composantes.

Centre des forces parallèles. Centre de gravité: sa recherche se réduit à une question de géométrie quand le corps est homogène. Cas où le corps a un plan de symétrie, un axe ou un centre de figure. Notion du centre de gravité d'une ligne et d'une surface considérées comme composées d'éléments dont le poids est proportionnel à leur étendue.

Centre de gravité d'un triangle: il est le même que celui du système de trois sphères homogènes égales qui auraient leurs centres aux trois sommets. Centre

de gravité d'un polygone. Cas particuliers du trapèze et du quadrilatère quelconque.

Centre de gravité du tétraèdre ; il est le même que celui du système de quatre sphères homogènes égales qui auraient leurs centres aux quatre sommets, et se trouve au point d'intersection des droites qui joignent les milieux des arêtes respectivement opposées. Centre de gravité de la pyramide, du cône.

La notion du centre de gravité ne suppose pas nécessairement la solidité des corps ; elle s'applique à un système quelconque de points matériels.

Le travail de la pesanteur sur un corps ou sur un système de corps est le même que si la masse de ces corps se trouvait concentrée en leur centre de gravité général. Application relative à l'élévation des fardeaux.

Composition générale des forces appliquées à un corps solide invariable. Leur réduction à deux forces équivalentes, dont l'une passe par un point donnée. Pour l'équilibre, ces forces doivent être égales et directement contraires, et la somme algébrique des travaux des forces proposées doit être nulle pour tout déplacement fictif ou virtuel du corps. En déduire les six équations de l'équilibre.

Des machines.

Les machines ont en général pour but de transmettre, sous certaines conditions, l'action et le travail des forces. Influence des résistances dites *passives* : le travail moteur est toujours plus grand que le travail résistant utile. Notions élémentaires relatives aux machines simples sollicitées uniquement par une puissance et une résistance. Ce qu'on gagne en force, on le perd en temps ou en chemin.

Équilibre et travail des forces appliquées au levier. Des balances. Conditions à remplir pour qu'elles ne soient ni folles ni paresseuses. Mesure de leur sensibilité.

Équilibre et travail des forces appliquées au treuil, à la poulie fixe ou mobile. Moufles.

Équilibre et stabilité d'un corps pesant posé sur un plan fixe horizontal ou incliné. Réactions du plan. Moments et degrés divers de stabilité.

Lois expérimentales du frottement : 1° à l'instant du départ ; 2° pendant le mouvement. Expériences de Coulomb relatives au frottement des corps.

Mouvement uniforme et équilibre d'un corps sur un plan incliné, en supposant ce corps uniquement soumis à l'action de la pesanteur et au frottement du plan. Cas du mouvement uniformément accéléré. Équations du travail et des forces vives. Portion du travail absorbée par le frottement.

Frottement dans la poulie fixe.

Physique.

Préliminaires.

But de la physique. Phénomènes. Lois physiques. Les expériences sont destinées à les faire ressortir des phénomènes. Théories physiques. Caractère différent des méthodes expérimentales et des méthodes mathématiques.

Propriétés générales les corps.

Étendue. Mesure des longueurs. Mètre. Vernier. Cathétomètre. Comparateur. Vis micrométrique, sphéromètre. Machine à diviser.

Divisibilité, porosité. Idées généralement admises sur la constitution moléculaire des corps. Ces conceptions purement hypothétiques ne doivent pas être confondues avec les lois physiques. Élasticité.

Mobilité. Inertie. Forces. Leur équilibre ; leur action mécanique ; leur évaluation numérique.

Pesanteur.

Direction de la pesanteur. Fil à plomb. Relation entre la direction de la pesanteur et la surface des eaux tranquilles.

Poids. Centre de gravité.

Étude expérimentale du mouvement produit par la pesanteur. Influence perturbatrice de l'air. Plan incliné de Galilée. Machine d'Atwood. Démontrer par l'expérience : 1°, la loi des espaces parcourus ; 2°, la loi des vitesses. Appareil de M. Morin. Démonstration de la loi des espaces et des vitesses.

Loi de l'indépendance de l'effet produit par une force sur un corps, et du mouvement antérieurement acquis de ce corps. Loi de l'indépendance des effets des forces qui agissent simultanément sur un même corps. Démonstration expérimentale et généralisation de ces lois. Loi de l'égalité de l'action et de la réaction.

Masse. Accélération. A égalité de masse, les forces sont entre elles comme les accélérations qu'elles produisent. Relation entre une force, la masse du corps sur lequel elle agit, et l'accélération qui résulte de cette action. Choc des corps.

Lois générales du mouvement uniformément varié. Formules.

Pendule. Loi de l'isochronisme des petites oscillations et loi des longueurs, déduites de l'observation. Méthode des coïncidences. Emploi du pendule pour la mesure du temps. Pendule simple. Formule. Pendule composé. Les lois des oscillations d'un pendule composé sont identiques aux lois des oscillations d'un pendule simple dont le calcul détermine la longueur. Détermination, au moyen du pendule, de l'accélération produite par la pesanteur. Cette accélération est indépendante de la nature des corps.

Remarquer que les formules du mouvement oscillatoire s'appliquent à la comparaison des forces de toute nature qu'on peut regarder comme constantes et parallèles à elles-mêmes dans toutes les positions du corps oscillant.

Identité de la pesanteur et de l'attraction universelle.

Balance. Conditions de son établissement. Sensibilité. Si le point de suspension du fléau et les points d'attache des plateaux étaient exactement en ligne droite, la sensibilité serait indépendante des poids qui chargeraient les plateaux. Méthode des doubles pesées. Détails des précautions nécessaires pour obtenir une pesée exacte.

Définition de la densité. La densité est le rapport du poids d'un corps à son volume.

Hydrostatique et hydrodynamique.

Distinction des divers états des corps.

Principle de Pascal : dans l'intérieur d'un liquide la pression exercée sur un élément de surface est normale à l'élément et indépendante de sa direction. La démonstration de ce principe résulte de la vérification expérimentale de ses conséquences. Principe de l'égale transmission des pressions : si l'on exerce une pression sur une portion plane, égale à l'unité, de la surface d'un liquide, l'effort transmis sur une surface plane quelconque, prise à l'intérieur du liquide ou sur les parois, est égal à la pression exercée, multipliée par l'étendue de cette surface. Vérification de ce principe au moyen de la presse hydraulique.

Application des principes précédents aux liquides pesants. Direction de la surface libre. Pressions intérieures ; surfaces de niveau. Pressions sur les parois, en particulier sur le fond des vases ; paradoxe hydrostatique. Appareil de Haldat ; expériences diverses.

Principe d'Archimède. Vérification expérimentale ; démonstration théorique déduite des principes précédents. Corps flottants. (On ne considérera pas les conditions de stabilité de l'équilibre.)

Liquides superposés.

Vases communiquants. Niveau d'eau. Niveau à bulle d'air ; son usage dans les instruments.

Densité des solides et des liquides. Balance hydrostatique. Aréomètres.

Compressibilité des liquides. Indiquer les appareils propres à la constater. Faire comprendre la nécessité d'une correction due à la compressibilité de l'enveloppe solide.

Propriétés communes aux liquides et aux gaz. Principe de l'égalité de pression en tous sens. Principe de l'égale transmission des pressions. Pesanteur des gaz. Pressions dues à la pesanteur. Principe d'Archimède ; poids des corps dans l'air et dans le vide ; aérostats.

Liquides et gaz superposés. Extension du principe des vases communiquants. Application au baromètre.

Construction détaillée du baromètre. Baromètres de Fortin, de Gay-Lussac, de Bunten. Indiquer la nécessité des corrections usitées.

Loi de Mariotte. Expériences de M. Regnault.

Manomètre à air libre. Manomètre à air comprime. Manomètre de M. Bourdon.

Loi du mélange des gaz.

Machine pneumatique. Degré de vide. Machine de compression.

Principe de Torricelli. Siphon. Vase de Mariotte. Fontaine de Héron. Fontaine intermittente.

Capillarité.

Cohésion des liquides. Adhérence des liquides aux solides. Lois expérimentales des phénomènes capillaires.

Électricité statique.

Phénomènes généraux. Distinction des corps conducteurs et des corps non conducteurs. Distinction des deux espèces d'électricité. Séparation des deux électricités par le frottement. Hypothèse des fluides électriques.

Démonstration des lois de l'attraction et de la répulsion des fluides électriques. Expériences de Coulomb.

Déperdition de l'électricité. Influence de l'air. Influence des supports isolants : de l'humidité condensée à la surface des supports.

Étude expérimentale de la distribution de l'électricité à la surface des corps. Méthode du plan d'épreuve. Propriété des pointes.

Électrisation par influence. Cas où le corps soumis à l'influence est déjà électrisé. Étincelles. Pouvoir des pointes.

Électrisation par influence précédant le mouvement des corps légers. Électroscopes.

Machines électriques de Van-Marum, de Nairn, d'Armstrong.

Condensateur à lame d'air. Accumulation d'électricité sur la surface de cet appareil. Bouteille de Leyde. Batteries. Décharges électriques. Effets principaux.

Électroscope condensateur. Électrophore.

Électricité atmosphérique. Phénomènes observés par un ciel serein. Électricité des nuages. Orages. Éclair. Tonnerre. Effets de la foudre. Choc en retour. Paratonnerre.

Indication des sources diverses d'électricité statique.

Magnétisme.

Aimants naturels. Action sur le fer et sur l'acier. Aimants artificiels. L'action attractive paraît concentrée vers les extrémités des barreaux. Première idée des pôles.

Direction d'un barreau aimanté sous l'action de la terre. Action réciproque des pôles de deux aimants. Dénomination des pôles.

Phénomènes d'influence. Action d'un aimant sur un barreau de fer doux. Action sur un barreau d'acier. Force coercitive. Effets de la rupture d'un barreau aimanté. Idées théoriques sur la constitution des aimants. Définition précise des pôles.

Action de la terre. Elle se réduit à un couple. On peut la détruire sensiblement par l'action d'un aimant convenablement placé. Définition de la déclinaison, de l'inclinaison, du méridien magnétique.

Lois des attractions et des répulsions magnétiques déterminées par la méthode des oscillations.

Procédés d'aimantation. Armatures. Points conséquents. Influence de la trempe, de l'écrouissage, de la chaleur. Aimantation par l'action de la terre.

Liste des métaux magnétiques.

Chimie.

Préliminaires.

Idée générale des phénomènes dont la chimie s'occupe. Distinction des corps en corps simples et en corps composés. Divisibilité de la matière. Différents états des corps. Force d'agrégation et de cohésion. Affinité chimique. Loi des proportions multiples. Caractères physiques et organoleptiques qui servent à spécifier les corps. Cristallisation des corps. Circonstances dans lesquelles les corps prennent la forme cristalline.

Règles de la nomenclature chimique. Anomalies qu'elles présentent aujourd'hui : notations et formules chimiques. Division des corps simples en métalloïdes et en métaux.

Oxygène.

Divers modes de préparation. Appareil pour recueillir les gaz ; gazomètres. Définition de la densité d'un gaz. Propriétés physiques et chimiques du gaz oxygène. Chalumeau à air, à oxygène.

Hydrogène.

Divers modes de préparation. Propriétés physiques et chimiques de ce gaz. Chalumeau à gaz hydrogène et oxygène. Dessiccation du gaz.

Combinaisons de l'hydrogène avec l'oxygène. Protoxyde d'hydrogène ou eau. Propriétés physiques de l'eau. Congélation. Définition de la densité des vapeurs. Évaporation. Vapeur d'eau dans l'atmosphère ; substances déliquescentes et efflorescentes. Distillation, alambic et appareils divers employés dans les laboratoires. Évaporation des dissolutions salines. Lois de la solubilité des gaz dans les liquides. Procédé à l'aide duquel on détermine la quantité de gaz dissoute dans l'eau qui a séjourné au contact de l'atmosphère.

Analyse de l'eau. Calibrage et vérification des cloches divisées. Eudiomètres. Synthèse de l'eau par la méthode eudiométrique. Première remarque sur la simplicité des rapports entre les volumes des gaz simples qui se combinent. Synthèse de l'eau par la combustion de l'hydrogène au moyen de l'oxygène de l'oxyde de cuivre. Analyse de l'eau par la pile. Manières diverses d'exprimer la composition de l'eau. Première notion des équivalents chimiques et des poids atomiques.

Bioxyde d'hydrogène ou eau oxygénée. Mode de préparation. Propriétés physiques et chimiques. Actions de présence ou catalytiques. Analyse du bioxyde d'hydrogène.

Azote ou nitrogène.

Modes de préparation. Propriétés physiques.

Air atmosphérique. Généralités sur la constitution de l'atmosphère. Détermination des quantités de vapeur d'eau et d'acide carbonique contenues dans l'atmosphère. Aspirateur à écoulement constant. Détermination de l'oxygène par les réactifs absorbants et par la combustion dans l'eudiomètre. L'air est un mélange et non une combinaison des gaz azote et oxygène ; preuve fondée sur la loi de solubilité des gaz dans l'eau.

Combinaisons de l'azote avec l'oxygène. Acide azotique ou nitrique. Acide azotique anhydre ; acides hydratés à proportions définies. Propriétés chimiques de l'acide azotique à divers états de concentration. Combinaison directe de l'azote et de l'oxygène sous l'influence de l'étincelle électrique. Préparation de l'acide azotique dans les arts. Purification de l'acide azotique du commerce. Analyse de l'acide azotique.

Protoxyde d'azote. Préparation. Propriétés physiques et chimiques de ce gaz. Son analyse par le potassium et dans l'eudiomètre.

Bioxyde d'azote. Préparation. Propriétés chimiques. Dissolution du deutoxyde d'azote dans l'acide azotique plus ou moins concentré. Explication des colorations diverses que présentent ces dissolutions. Analyse du deutoxyde d'azote.

Acide azoteux. Circonstances dans lesquelles il se produit.

Acide hypoazotique. Préparation. Son analyse.

Récapitulation des combinaisons de l'azote avec l'oxygène. Remarques sur les rapports en volume et en poids suivant lesquels l'azote et l'oxygène se combinent pour former ces composés. Équivalent de l'azote.

Combinaison de l'azote avec l'hydrogène ou ammoniaque. Circonstances dans lesquelles l'azote et l'hydrogène paraissent se combiner directement. Origine des composés ammoniacaux. Préparation du gaz ammoniac et de sa dissolution aqueuse. Préparation dans les arts. Propriétés physiques et chimiques du gaz ammoniac. Son analyse. Combinaison directe du gaz ammoniac avec le gaz acide chlorhydrique; remarque sur le rapport des volumes de ces deux gaz qui se combinent; équivalent de l'ammoniaque.

Soufre.

État sous lequel on le trouve dans la nature. Extraction et purification du soufre naturel. Propriétés physiques du soufre; dimorphisme; phénomènes curieux qu'il présente à diverses températures. Propriétés chimiques du soufre.

Combinaisons du soufre avec l'oxygène. Acide sulfureux. Divers modes de production de ce gaz. Propriétés physiques et chimiques. Analyse du gaz acide sulfureux. Emploi de l'acide sulfureux pour le blanchiment de la laine et de la soie et pour enlever les taches de fruits sur le linge.

Acide sulfurique. Sa formation par l'action de l'acide azotique sur le soufre et sur l'acide sulfureux. Acide sulfurique monohydraté. Précautions à prendre dans sa distillation et dans son mélange avec l'eau. Analyse de l'acide sulfurique monohydraté. Divers hydrates définis de l'acide sulfurique. Acide sulfurique fumant de Nordhausen; sa préparation dans le Hartz. Acide sulfurique anhydre; sa formation par la combinaison directe de l'acide sulfureux et de l'oxygène, sous l'influence de la mousse de platine. Son extraction de l'acide fumant de Nordhausen. Préparation de l'acide sulfurique hydraté dans les arts, par la méthode anglaise ou des chambres de plomb. Cristaux des chambres de plomb.

Acide hyposulfurique. Circonstances dans lesquelles il se produit.

Acide hyposulfureux. Circonstances dans lesquelles il se produit.

Récapitulation des combinaisons du soufre avec l'oxygène. Détermination de l'équivalent du soufre.

Combinaisons du soufre avec l'hydrogène. Acide sulfhydrique. Sa préparation. Propriétés physiques et chimiques de ce gaz. Eaux minérales sulfureuses. Analyse du gaz acide sulfhydrique.

Bisulfure d'hydrogène. Circonstances dans lesquelles il se produit.

Sélénium, tellure.

Faire voir seulement leur analogie avec le soufre.

Chlore.

Préparation de ce gaz dans les laboratoires et dans les arts. Propriétés physiques. Dissolution aqueuse. Hydrate défini du chlore. Propriétés oxydantes de la dissolution aqueuse du chlore. Son emploi pour décolorer les tissus d'origine végétale.

Combinaisons du chlore avec l'oxygène. Acide chlorique; preparation. Composition déduite de l'analyse du chlorate de potasse. Acide perchlorique. Circonstances dans lesquelles il se produit. Acides hypochloreux, chloreux et hypochlorique. Circonstances dans lesquelles ces composés se produisent.

Récapitulation des combinaisons du chlore avec l'oxygène. Equivalent du chlore.

Acide chlorhydrique. Combinaison directe du chlore avec l'hydrogène, sous l'influence de la lumière solaire. Préparation de l'acide chlorhydrique dans les laboratoires et dans les arts. Purification de l'acide chlorhydrique du commerce. Analyse du gaz acide chlorhydrique.

Combinaisons du chlore avec le soufre. Quelques mots sur ces composés.

Chlorure d'azote. Signaler simplement les circonstances dans lesquelles il

se produit et les précautions qu'il faut prendre pour éviter la formation de ce composé dangereux dans plusieurs opérations de laboratoire.

Eau régale. Constitution chimique de l'eau régale. Son emploi dans les laboratoires comme agent oxydant et comme agent chlorurant.

Brome.

Faire voir son analogie complète avec le chlore.

Iode.

Extraction des eaux mères des soudes de varech. Propriétés physiques. Son emploi en médecine. Quelques mots sur les combinaisons de l'iode avec l'oxygène et avec l'hydrogène.

Iodure d'azote.

Fluor.

Son existence hypothétique. Acide fluorhydrique. Préparation. Sa composition déduite de l'analyse du fluorure de calcium. Emploi de l'acide fluorhydrique gazeux ou en dissolution pour graver sur le verre. Manière de l'employer pour graver les échelles sur verre des instruments de physique.

Phosphore.

Propriétés physiques et chimiques. Divers états isomériques. Précautions à prendre dans la distillation du phosphore. Préparation du phosphore dans les arts. Allumettes phosphoriques ou chimiques.

Combinaisons du phosphore avec l'oxygène. Acid phosphorique. Préparation de l'acide anhydre par la combustion directe du phosphore dans l'oxygène ou dans l'air. Préparation de l'acide hydraté par l'action de l'acide azotique sur le phosphore. Analyse de l'acide phosphorique.

Acide phosphoreux ; circonstances dans lesquelles il se produit. Préparation par l'action du chlore, en présence de l'eau, sur le phosphore. Acide hypophosphoreux et oxyde de phosphore ; circonstances dans lesquelles ces corps se produisent.

Récapitulation des combinaisons du phosphore avec l'oxygène. Équivalent du phosphore.

Combinaisons du phosphore avec l'hydrogène. Méthode générale pour faire l'analyse de ces corps.

Chlorures de phosphore. Combinaison du phosphore dans le chlore.

Arsenic.

État sous lequel on le trouve dans la nature. Préparation.

Combinaisons de l'arsenic avec l'oxygène. Acide arsénieux ; sa formation dans les arts par le grillage des arséniures et des arséniosulfures. États isomériques de l'acide arsénieux. Acide arsénique. Équivalent de l'arsenic.

Combinaisons de l'arsenic avec l'hydrogène. Hydrogène arsénié.

Chlorure d'arsenic ; signaler seulement son existence et donner sa composition.

Empoisonnements par l'acide arsénieux ; caractères qui les distinguent ; contre-poisons. Recherche de l'arsenic dans les cas d'empoisonnements. Appareil de Marsh.

Bore.

Sa préparation. Propriétés chimiques.

Acide borique. État sous lequel on le trouve dans la nature. Propriétés chimiques de l'acide borique. Son extraction des lagoni de la Toscane. Difficultés qui se présentent dans la fixation de l'équivalent du bore.

Fluorure de bore.

Silicium.

Préparation et propriétés physiques.

Acide silicique. Son existence dans la nature. Préparation de l'acide silicique gélatineux. Composition de l'acide silicique déduite de l'analyse du chlorure de silicium. Difficultés qui se présentent dans la fixation de l'équivalent du silicium et de la formule de l'acide silicique.

Chlorure de silicium. Fluorure de silicium et acide hydro-fluosilicique.

Carbone.

États divers sous lesquels le carbone se trouve dans la nature, ou qu'il prend lorsqu'il résulte de la décomposition des diverses matières organiques. Diamant; graphite naturel ou plombagine; graphite des hauts fourneaux; charbon de houille ou coke; charbon de bois; charbon des matières organiques fusibles; noir animal, noir de fumée. Pesanteurs spécifiques variables du carbone. Absorption des gaz et de diverses matières solubles par le charbon poreux. Emploi du noir animal pour décolorer les liqueurs dont la coloration est due à des matières organiques. Carbonisation intérieure des tonneaux de bois destinés à conserver l'eau.

Combinaisons du carbone avec l'oxygène. Acide carbonique. Divers modes de formation, préparation. Propriétés physiques du gaz acide carbonique. Liquéfaction de l'acide carbonique. Appareil de Thilorier pour préparer l'acide carbonique liquide. Emploi de l'acide carbonique liquide dans les expériences de physique qui exigent un froid considérable. Circonstances dans lesquelles l'acide carbonique se produit dans la nature. Solubilité de l'acide carbonique dans l'eau. Eaux gazeuses naturelles et artificielles. Analyse de l'acide carbonique.

Oxyde de carbone; sa production dans les fourneaux à cuve. Préparation par la réaction du charbon sur l'acide carbonique. Préparation dans les laboratoires par l'action de l'acide sulfurique concentré sur l'acide oxalique. Propriétés physiques et chimiques du gaz oxyde de carbone. Analyse du gaz oxyde de carbone.

Acide oxalique; son existence dans les sucs acides de certains végétaux. Préparation dans les laboratoires par l'action de l'acide azotique sur le sucre. Analyse de l'acide oxalique. Méthode générale d'analyse des combinaisons de carbone, d'hydrogène et d'oxygène.

Récapitulation des combinaisons du carbone avec l'oxygène. Détermination de l'équivalent du carbone.

Quelques mots sur les combinaisons du carbone avec l'hydrogène. Application des méthodes eudiométriques à l'analyse des carbures d'hydrogène gazeux.

Sulfure de carbone ou acide sulfocarbonique; sa préparation dans les laboratoires et dans les arts. Propriétés physiques et chimiques du sulfure de carbone; ses applications dans les laboratoires et dans les arts. Analyse du sulfure de carbone. Analogie chimique du sulfure de carbone avec l'acide carbonique.

Combinaison du carbone avec l'azote, cyanogène. Préparation. Propriétés physiques et chimiques. Analyse du cyanogène. Acide cyanhydrique ou prussique. Préparation de l'acide anhydre et de l'acide en dissolution. Analyse de l'acide cyanhydrique.

MANIPULATIONS.*

Première manipulation. Cristallisation du sulfate de soude. Oxygène par le peroxyde de manganèse. Oxygène par le chlorate de potasse. Combustion du soufre, du phosphore, du charbon et du fer dans l'oxygène.

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* "Aux leçons de chimie correspondent douze manipulations qu'il est indispensable de faire exécuter par les élèves, conformément au présent programme.

"Les élèves ne doivent jamais être livrés à eux-mêmes pendant les manipulations. Celles-ci doivent toujours être précédées d'une conférence où on expose, avec tous les détails nécessaires, les procédés opératoires relatifs aux manipulations que les élèves vont effectuer. En décrivant ces opérations le professeur les exécute, en se servant des appareils mêmes dont les élèves vont faire usage. Enfin, on expose sous leurs yeux des appareils montés d'avance qui leur indiquent toutes les dispositions qu'ils auront à observer dans l'arrangement des pièces qui les composent." (Instruction du 15 Novembre 1854.)

Deuxième manipulation. Oxygène par le peroxyde de manganèse et l'acide sulfurique. Hydrogène par le fer et la vapeur d'eau. Hydrogène par le zinc et l'acide sulfurique. Détonation d'un mélange d'hydrogène et d'oxygène dans l'eudiomètre.

Chlore sec. Combustion du phosphore et de l'antimoine dans le chlore. Décoloration de l'encre ordinaire, de la teinture de tournesol et du vin rouge par le chlore.

Troisième manipulation. Azote par le phosphore. Azote par le cuivre.

Cristallisation du soufre. Soufre mou. Distillation du soufre brut.

Extraction de l'iode. Iodure d'amidon. Recherche du brome.

Quatrième manipulation. Décomposition de l'eau par le charbon.

Calcination des os. Décoloration de la teinture de tournesol et du vin rouge par le charbon d'os.

Analyse de l'air par le phosphore à chaud. Analyse de l'air par l'hydrogène.

Cinquième manipulation. Synthèse de l'eau par l'oxyde de cuivre.

Extraction de l'air de l'eau. Son analyse.

Distillation de l'eau.

Essai des eaux par l'eau de chaux,—l'eau de savon,—le chlorure de barium,—l'azotate d'argent,—l'oxalate d'ammoniaque,—le carbonate de soude,—la teinture de campêche.

Sixième manipulation. Décomposition du sel marin par l'acide sulfurique. Préparation de l'acide chlorhydrique et du sulfate de soude.

Gravure sur verre par l'acide fluorhydrique. Préparation de l'acide iodhydrique par l'iode et l'acide sulfhydrique. Action de l'acide iodhydrique sur les sels de plomb. Action du chlore sur l'acide iodhydrique.

Préparation du bisulfure d'hydrogène.

Septième manipulation. Préparation du phosphure de calcium. Préparation de l'hydrogène phosphoré.

Essai d'une dissolution d'acide arsénieux par le procédé de Marsh. Essai d'une dissolution d'émétique par le même procédé.

Préparation du gaz des marais. Préparation du gaz oléfiant et de la liqueur des Hollandais.

Huitième manipulation. Préparation de l'ammoniaque en dissolution.

Décomposition de l'ammoniaque par le fer. Analyse du gaz en provenant.

Action du chlore dissous sur l'ammoniaque liquide.

Préparation du protoxyde d'azote.

Neuvième manipulation. Préparation et étude des propriétés de l'acide azotique.

Préparation du bioxyde d'azote.

Dixième manipulation. Préparation de l'acide sulfureux. Préparation de l'acide sulfurique de Nordhausen.

Action de l'acide sulfureux sur le bioxyde d'azote et l'air humide.

Préparation de l'acide phosphorique.

Onzième manipulation. Préparation et étude de l'oxyde de carbone et de l'acide carbonique.

Préparation de l'acide borique.

Coloration du borax par les oxydes métalliques.

Douzième manipulation. Préparation des chlorures de phosphore, du chlorure de soufre, du sulfure de carbone et de l'acide fluosilicique.

PHILOSOPHIE.

Classe de Philosophie.—Programme du cours.

Objet de la philosophie. Ses rapports avec les autres sciences. Sa division.

Psychologie.

Des faits psychologiques et de la conscience.

Des facultés de l'âme : sensibilité, facultés intellectuelles, activité.

Sensibilité : des sens, des sensations, des sentiments.

Facultés intellectuelles : perception, conscience, mémoire, imagination, judgement, raison.

Des idées en général, de leur origine, de leurs caractères. Notions et vérités premières.

De l'activité et de ses divers caractères. Activité volontaire et libre. Démonstration de la liberté.

De la personnalité. De la spiritualité de l'âme. Distinction de l'âme et du corps, et leurs rapports.

Logique.

De la vérité et de l'erreur. De l'évidence, de la certitude, de la probabilité.

Des signes et du langage dans leurs rapports avec la pensée.

De la méthode : analyse et synthèse.

Analogie, induction et déduction.

Raisonnement. Syllogisme.

De la définition, de la division et des classifications.

Méthode dans les différents ordres de sciences.

Autorité du témoignage des hommes.

Des erreurs et des sophismes.

Morale.

Divers motifs de nos actions.

Conscience morale. Distinction du bien et du mal. Du devoir et de a vertu.

Mérite et démérite. Peines et récompenses. Sanction de la morale.

Division des devoirs. Devoirs de l'homme envers lui-même, envers ses semblables, la famille et l'Etat.

Théodicée.

Existence de Dieu. Preuves de l'existence de Dieu.

Principaux attributs de Dieu. De la Providence. Réfutation des objections tirées du mal physique et du mal moral.

Destinée de l'homme. Preuves de l'immortalité de l'âme.

Morale religieuse ou devoirs envers Dieu.

Histoire de la philosophie.

Notions d'histoire de la philosophie.

HISTOIRE.

Histoire de France et Histoire du moyen âge, du cinquième au quatorzième siècle.

Révision sommaire de l'histoire ancienne.

Invasion des barbares.

Clovis. Fondation de l'empire des Francs.

Théodoric et les Ostrogoths en Italie. Justinien : tentative de restauration de l'empire romain. Les Lombards.

Dagobert. Les rois fainéants et les maires du palais. Bataille de Testry. Pepin d'Héristal ; Charles Martel ; Pepin le Bref.

Charlemagne. Ses guerres. Son gouvernement. Étendue de son empire.

Mahomet. Conquêtes des Arabes. Partage du khalifat. Éclat de la civilisation arabe au neuvième siècle.

Louis le Débonnaire. Bataille de Fontanet. Traité de Verdun.

Charles le Chauve. Nouvelles invasions des barbares : les Northmans. Démembrement de l'empire en royaumes et de la France en grands fiefs. Régime féodal.

Allemagne et Italie. Othon le Grand. Grégoire VII.; la querelle des investitures.

France. Les quatre premiers Capétiens. Fondation du royaume des Deux-Siciles et du royaume de Portugal. Conquête de l'Angleterre par les Normands. Première croisade.

Louis le Gros. Les communes. Louis VII. La seconde croisade.

Les Plantagenêts. Henri II. et Thomas Becket.

Angleterre et France. Philippe Auguste et Richard Cœur-de-Lion; la troisième croisade. Jean Sans-Terre. Bataille de Bouvines. La grande charte.

Allemagne et Italie. Les Guelfes et les Gibelins. Frédéric Barberousse et Alexandre III. Innocent III. et la quatrième croisade; Venise. Frédéric II. et Innocent IV.

France. Guerre des Albigeois. Louis VIII. Régence de Blanche de Castille. Saint Louis, ses guerres, ses croisades, son gouvernement. La maison d'Anjou à Naples.

Philippe le Hardi et Philippe le Bel. Guerres avec l'Aragon, la Flandre, et l'Angleterre. Différend avec Boniface VIII. États généraux. Résidence des papes à Avignon. Condamnation des Templiers.

Les trois fils de Philippe le Bel. La loi salique. Avénement des Valois.

Tableau sommaire de la constitution anglaise au commencement du quatorzième siècle.

Allemagne. Avénement de la maison de Habsbourg. Affranchissement de la Suisse.

Histoire de la France, du moyen âge et des temps modernes, du quatorzième siècle au milieu du dix-septième.

Philippe de Valois et Édouard III. Commencement de la guerre de Cent ans. Bataille de Crécy. Siége de Calais.

Jean et le prince Noir. Bataille de Poitiers. États généraux. La Jacquerie. Paix de Brétigny.

Charles V. Les grandes compagnies en France et en Espagne. Duguesclin. Nouvelle guerre avec les Anglais. Ordonnances de Charles V. Grand schisme d'Occident.

Charles VI. et Richard II. Troubles en France et en Angleterre. Avénement des Lancastre. Assassinat du duc d'Orléans. Les Armagnacs et les Bourguignons. Henri V. Bataille d'Azincourt. Traité de Troyes.

Henri VI. et Charles VII. Jeanne d'Arc. Traité d'Arras. La Praguerie. Fin de la guerre de Cent ans. Institutions de Charles VII.

Allemagne. Maison de Luxembourg. La bulle d'or. Guerre des Hussites. Fin du grand schisme d'Occident. Maison d'Autriche: Maximilien.

Les Turcs en Europe. Bajazet I^er^ et Tamerlan. Mahomet II. Prise de Constantinople.

Louis XI. et Charles le Téméraire. Agrandissement du domaine royal. Gouvernement de Louis XI.

Guerre des deux Roses en Angleterre. Avénement des Tudors.

Formation du royaume d'Espagne. Ferdinand et Isabelle. Prise de Grenade.

Découvertes maritimes des Portugais et des Espagnols. Christophe Colomb. Empire portugais aux Indes. Empire espagnol au Nouveau Monde.

Charles VIII. et Anne de Beaujeu. État de l'Italie vers la fin du quinzième siècle. Expédition d'Italie. Bataille de Fournoue.

Louis XII. Conquête du Milanais. Expédition de Naples. Jules II. La ligue de Cambrai. La sainte ligue. Bataille de Ravenne.

François I^er^. Bataille de Marignan. Charles-Quint. Rivalité de la France et de la maison d'Autriche. Bataille de Pavie. Traités de Madrid et de Cambrai. Soliman. Henri VIII. Traités de Crépy et d'Ardres.

Henri II. Conquête des Trois-Évêchés. Abdication de Charles-Quint. Philippe II. Bataille de Saint-Quentin. Prise de Calais. Paix de Câteau-Cambrésis.

Découverte et influence de l'imprimerie. La renaissance en Italie et en France.

La réforme en Suisse et en Allemagne. Zwingle et Luther. Bataille de Muhlberg. Paix d'Augsbourg.

La réforme en Angleterre et en Écosse. Henri VIII.; Édouard VI.; Marie Tudor; Élisabeth et Marie Stuart.

La réforme dans les Pays-Bas. Affranchissement des Provinces-Unies. Philippe II. Conquête du Portugal.

La réforme en France. Calvin. Guerres de religion. François II. et Charles IX. Henri III. et la Ligue.

Henri IV. Fin des guerres de religion. Sully. Administration et politique de Henri IV.

Louis XIII. Le maréchal d'Ancre et le duc de Luynes. Richelieu. Abaissement des protestants et de la noblesse.

La guerre de Trente ans. Paix de Westphalie.

Les Stuarts en Angleterre. Jacques I^er^ et Charles I^er^. Révolution de 1648. Olivier Cromwell.

Histoire de France et Histoire moderne, depuis l'avénement de Louis XIV. jusqu'à 1815.

Minorité de Louis XIV. La Fronde. Guerre contre l'Espagne. Traité des Pyrénées.

Gouvernement personnel de Louis XIV. Colbert et Louvois. Conquêtes de la Flandre et de la Franche-Comté. Paix d'Aix-la-Chapelle et de Nimègue. Chambres de réunion. Révocation de l'édit de Nantes.

Révolution de 1688 en Angleterre. Guillaume III. Guerres de la ligue d'Augsbourg et de la succession d'Espagne. Traités de Ryswyk, d'Utrecht, et de Rastadt.

Caractère général du gouvernement de Louis XIV. Institutions et fondations. Tableau des lettres, des sciences, et des arts en France pendant le règne de Louis XIV.

Louis XV. Régence du duc d'Orléans. Ministère du cardinal Fleury. Guerre de la succession de Pologne. Traité de Vienne.

Guerre de la succession d'Autriche et guerre de Sept ans. Progrès du royaume de Prusse. Frédéric II. Traité de Paris. Perte des colonies françaises.

Fin du règne de Louis XV. Acquisition de la Lorraine et de la Corse. Destruction des parlements. État des esprits à cette époque. Progrès des sciences.

Lutte de la Suède et de la Russie. Charles XII. et Pierre le Grand.

Catherine II. Partage de la Pologne. Guerres de la Russie contre la Suède et la Turquie.

Puissance maritime et coloniale de l'Angleterre. Conquêtes des Anglais aux Indes orientales. Régime colonial.

Progrès et soulèvement des colonies d'Amérique. Guerre de l'indépendance des Etats-Unis. Traité de Versailles.

Louis XVI. Turgot et Malesherbes. Necker. Assemblée des notables. Convocation des états généraux. Situation politique de l'Europe en 1789.

Assemblée constituante et Assemblée législative. Réunion des trois ordres. Prise de la Bastille. Journées des 5 et 6 Octobre. Constitution de 1791. Déclaration de guerre à l'Autriche. Journée du 10 Août. Massacres de Septembre.

Convention nationale. Procès et mort de Louis XVI. La Terreur. Journée du 9 Thermidor. Campagnes de 1793 et 1794. Le 13 Vendémiaire.

Directoire. Campagnes de Bonaparte en Italie. Traité de Campo-Formio. Expédition d'Egypte. Le 18 Brumaire.

Consulat. Marengo. Paix de Lunéville et d'Amiens. Consulat à vie.

Empire. Campagne d'Austerlitz. Trafalgar. Paix de Presbourg. Campagne de Prusse : Iéna, Friedland. Paix de Tilsitt. Blocus continental. Commencement de la guerre d'Espagne. Wagram.

Campagne de Russie. Campagne d'Allemagne. Campagne de France. Abdication de l'Empereur. Retour de l'île d'Elbe. Les Cent-Jours. Waterloo.

Traités de 1815.

Histoire contemporaine, de 1789 à 1864.

Première Partie : Résumé philosophique de l'histoire moderne jusqu'en 1815.

Résumer rapidement les faits généraux qui ont modifié, à partir du quinzième siècle, les idées, les intérêts, et la constitution de la société Européenne :

1°. Révolution politique, qui substitue d'abord la monarchie absolue aux dominations féodales ;

2°. Révolution religieuse, qui divise l'Europe, et prépare l'avénement du principe de la liberté des cultes ;

3°. Révolution économique, qui favorise le développement du grand commerce et de la richesse mobilière ;

4°. Révolution dans les arts et dans des lettres (XVI^e^ et XVII^e^ siècles), dans la philosophie et les sciences : développement de l'esprit d'observation et d'examen scientifique.

État de l'Europe dans la seconde moitié du dix-huitième siècle.

En France, opposition entre les idées et les institutions. Demandes de réformes.

La Révolution Française.

Assemblée constituante. Demandes des cahiers. Caractère des réformes politiques et sociales opérées par la Constituante. Exposition des principes de 1789.

Fin de l'ancien régime ; abolition des priviléges ; égalité civile et politique ; création des actes de l'état civil.

Réformes politiques : la royauté constitutionnelle substituée au pouvoir absolu.

Réformes judiciaires : séparation des pouvoirs administratif et judiciaire (tribunal de cassation, jury, justices de paix).

Réformes financières : nouveau système d'impôts ; les assignats et leurs conséquences. Retour sur l'histoire du crédit.

Suppression de l'ancienne réglementation industrielle ; liberté du travail et des transactions.

L'Assemblée législative, la Convention, et le Directoire.

Impression produite en Europe par la Révolution Française ; à l'intérieur, opposition de la cour, de la noblesse, et du clergé. L'émigration.

Déclaration de Pilnitz, manifeste de Brunswick, soulèvements intérieurs.

La Terreur. Suppression des libertés publiques (comité de salut public : *Maximum* et loi sur les accaparements). Le grand-livre de la dette publique et la banqueroute des deux tiers.

Le Consulat.

Constitution de l'an VIII. ; consécration des conquêtes civiles de la Révolution.

Mesures prises pour réconcilier les partis.

Organisation administrative, départementale et municipale.

Création de la Banque de France.

Nouvelle hiérarchie judiciaire (création des tribunaux d'appel).

Le Code civil : ses principes.

Le Concordat (loi du 13 Germinal an X).

Réorganisation de l'instruction publique. L'Université.

L'Empire.

La constitution impériale.

Politique intérieure de Napoléon I^er^ ; ordre public ; grands travaux d'utilité générale.

Etat des lettres et des arts. Sciences nouvelles (géologie et paléontologie). Applications industrielles de la science.

Politique extérieure de Napoléon I^er^. Blocus continental ; ses conséquences politiques et industrielles (droits des neutres).

Etat de l'Europe en 1810.

Gloire militaire. Expansion sur l'Europe des principes de 1789.

Coalition des puissances étrangères contre la prépondérance de la France.

Invasion du territoire Français. Chute de l'Empire.

Deuxième Partie : Histoire contemporaine.

La Restauration. Charte de 1814.

Les Cent-Jours ; l'acte additionnel.

Le congrès de Vienne et les traités de 1815.

Tableau comparé des puissances Européennes et de leurs colonies en 1789 et en 1815.

Napoléon à Sainte-Hélène.

En France, en Angleterre, en Italie, en Espagne, et en Allemagne, antagonisme entre l'ancien régime et les idées nouvelles.

La Sainte-Alliance.

Louis XVIII.

Occupation militaire du territoire Français.

Mesures économiques prises en vue de la politique nouvelle; système protecteur en France et en Angleterre.

Réaction politique. Sociétés secrètes en France et à l'étranger.

Révolutions en Espagne, à Lisbonne, à Naples, et à Turin; mouvement en Allemagne et en Pologne; insurrection des Grecs; émancipation des colonies Espagnoles.

Congrès de Troppau, de Laybach, et de Vérone. Intervention de l'Autriche en Italie, de la France en Espagne.

Politique de la Hollande en Belgique.

État des lettres, des sciences, et des arts. Influence des littératures étrangères.

Nouvelles applications de la science à l'industrie: navigation à vapeur, chemins de fer, éclairage au gaz, phares, carte géologique de la France; découvertes qui ont mis sur la voie de la télégraphie électrique.

Charles X.

Ministère Villèle. Indemnité aux émigrés.

État de l'Angleterre; ministère Wellington.

Révolution en Portugal; Dom Miguel à Lisbonne.

Progrès des idées libérales; émancipation des catholiques d'Irlande; réformes économiques de Huskisson; union douanière en Allemagne; ministère Martignac.

Intervention en faveur des Grecs; Navarin; invasion des Russes en Turquie; traité d'Andrinople; fondation d'un royaume Grec.

Ministère Polignac. Prise d'Alger. Les ordonnances, révolution de Juillet.

Résultats généraux des quinze années de la Restauration. Extension donnée au régime constitutionnel; prospérité financière et commerciale; institution des caisses d'épargne. Délivrance de la Grèce et destruction de la piraterie. Mouvement des esprits; résistance du gouvernement et sa chute.

Le roi Louis-Philippe. Charte de 1830.

Suites de la révolution de 1830 en Europe; création du royaume de Belgique; soulèvement de la Pologne; mouvements en Suisse, en Allemagne, et en Italie; intervention de l'Autriche; occupation d'Ancône par la France.

En Angleterre, bill de réforme.

En Espagne et en Portugal, établissement d'un gouvernement constitutionnel.

En Turquie, réformes de sultan Mahmoud; de Méhémet-Ali, en Égypte. Intervention des Russes (1833).

Rivalité de la Russie et de l'Angleterre en Orient. Progrès des Anglais aux Indes, des Russes au sud du Caucase et à l'est de la mer Caspienne. La Perse. Siége de Hérat (1838). Expédition des Anglais dans l'Afghanistan et des Russes contre Khiva.

Les Anglais et la Chine. Guerre de l'opium.

Sympathies de la France pour le pacha d'Égypte. Rapprochement entre l'Angleterre et la Russe. Première phase de la question d'Orient. Traité de Londres (1840); convention des détroits.

Résultats et faits généraux du règne Louis-Philippe. Système électoral (200,000 électeurs). Fréquents changements de ministères. Adoucissement de la loi pénale. Lois sur l'instruction primaire et sur les travaux publics; abolition de la loterie. Progrès de la liberté politique et religeuse. Sourde propagation des idées socialistes. Développement de l'industrie et du commerce. Lois sur les chemins vicinaux (1836) et sur les chemins de fer (1842). Progrès des sciences.

Conquête de la plus grande partie de l'Algérie.

Politique extérieure : attitude du gouvernement à l'égard des puissances étrangères.

Révolution de Février 1848. Gouvernement provisoire ; le suffrage universel. Proclamation de la République.

Explosion des idées communistes. Arrêt soudain du travail. Ateliers nationaux.

Élection du 10 Décembre ; le prince Louis-Napoléon président de la République.

Contre-coup des journées de Février en Europe : à Milan, à Venise, à Rome, à Vienne, à Berlin, à Francfort, en Hongrie, et dans les principautés danubiennes.

L'Autriche à Novare. Occupation de Rome par la France.

Rétablissement de l'Empire.

Napoléon III. et la nouvelle constitution impériale.

Satisfaction donnée aux besoins généraux du pays et aux intérêts populaires :

Institutions de bienfaisance ;

Impulsion donnée aux travaux publics ;

Encouragements à l'agriculture, à l'industrie, et aux arts ;

Institutions de crédit ;

Liberté commerciale ;

Instruction publique, liberté de l'enseignement.

Politique de l'empereur Nicolas à l'égard de la France depuis 1830. Influence du tzar sur l'Allemagne. Ses efforts pour dénationaliser la Pologne. Ses projets sur Constantinople. Guerre de Crimée. Prise de Sébastopol. Convention avec la Suède. Congrès et traité de Paris. Nouveaux principes du droit des gens. Expédition de Syrie. Canal de l'isthme de Suez.

Rôle de l'Autriche et du Piémont durant la guerre de Crimée. Les Autrichiens envahissent le Piémont. Intervention de la France. Batailles de Magenta et de Solférino. Paix de Villafranca et traité de Zurich. Formation d'un royaume d'Italie. Annexion à la France du comté de Nice et de la Savoie.

Agitations en Allemagne : antagonisme séculaire de la Prusse et de l'Autriche.

Progrès de l'influence des nations européennes dans le reste du monde.

Prospérité des colonies anglaises et des établissements hollandais. Position des Anglais dans l'Inde depuis la guerre des cipayes. Les Russes dans l'extrême Orient. Tentative des diverses puissances pour ouvrir le Japon et la Chine. Prise de Pékin par une expédition anglo-française. Conquête par la France de la basse Cochinchine. Nouveau système colonial ; le travail libre et le travail esclave.

Rapide essor de l'Union américaine ; ses causes. Découverte des gîtes aurifères de Californie et de l'Australie : effets de l'abondance de l'or sur le marché européen.

Guerre entre les États du Nord et ceux du Sud.

Situation des anciennes colonies espagnoles. Expédition du Mexique. Prise de Puebla, occupation de Mexico.

Tableau comparatif des grandes puissances du monde : population, religion, gouvernement, armée, flotte, budget, agriculture, industrie, commerce, arts, sciences, littérature.

Comparaison pour la France, entre les années 1788 et 1864, de la production agricole et industrielle, de la population et des ressources financières. Accroissement de la richesse publique et de la vie moyenne. Progrès de la charité publique ; diminution de la criminalité.

Caractères nouveaux de la société moderne :

1° Relations étroites établies entre les peuples par les chemins de fer et la navigation à vapeur, par la télégraphie électrique, les banques et le nouveau régime commercial. Propagation du système métrique ; expositions universelles. Progrès des idées de paix ; solidarité des intérêts entre les peuples.

2° Sollicitude des gouvernements pour les intérêts matériels et moraux du plus grande nombre.

3° Par l'égalité des droits et la libre expansion de l'activité individuelle, la richesse est produite en plus grande abondance et se distribue mieux ; l'épargne et le capital sont devenus possibles pour ceux qui vivent de salaires. Dans l'antiquité, la guerre, la spoliation et l'esclavage, avec leur influence corruptrice, donnaient la richesse ; le travail et l'épargne, avec leur action bienfaisante, sont désormais la source des fortunes privées.

Grandeur, mais danger de la civilisation moderne ; nécessité de développer les intérêts moraux pour faire équilibre au développement immense des intérêts matériels.

Part de la France dans l'œuvre générale de la civilisation.

ENSEIGNEMENT DE LA MUSIQUE.

L'enseignement de la musique est obligatoire, dans les lycées, pour tous les élèves des classes inférieures jusqu'à la quatrième inclusivement.

Il est facultatif pour les élèves des classes de troisième et au-dessus.

L'enseignement obligatoire comprend les matières suivantes : principes élémentaires de musique et de chant ; lecture, écriture et dictée musicale sur la portée.

Le but final de cet enseignement doit être : la lecture dans tous les tons majeurs et mineurs et avec les mesures les plus usitées, et l'exécution de morceaux de chant d'une difficulté moyenne, à une ou plusieurs voix.

L'enseignement facultatif peut comprendre, outre les matières de l'enseignement obligatoire, les principes élémentaires de l'harmonie.

Deux heures par semaine sont consacrées à l'enseignement musical obligatoire, pour chacune des divisions de cet enseignement. Ces leçons ne sont données ni le dimanche ni aux heures de récréation.

Les élèves sont divisés en plusieurs cours, autant qu'il est possible d'après leurs progrès en musique et non d'après la classe à laquelle ils appartiennent.

Une leçon d'une heure au moins par semaine est consacrée à l'enseignement musical facultatif.

La musique instrumentale est enseignée individuellement aux frais des familles.

ENSEIGNEMENT DU DESSIN.

L'enseignement du dessin d'imitation et d'ornement commence à la classe de sixième. Il a lieu, pour chaque classe, à des heures et à des jours différents.

En sixième et en cinquième, une leçon d'une heure par semaine est consacrée à des exercices préparatoires. Ces exercices ont pour objet :

1° L'imitation de *figures simples*, telles que celles de divers solides réguliers et de quelques parties de végétaux ;

2° L'imitation des *parties de la tête*.

En quatrième, deux leçons hebdomadaires ont pour objet :

1° L'étude théorique et pratique des éléments de la *perspective ;*

2° L'étude élémentaire de la *structure de l'homme* et des proportions du corps humain au point de vue du dessin ;

3° Le dessin des *parties de la tête* et de la *tête entière* d'après des estampes ou photographies.

Dans les classes de troisième et de seconde, deux leçons par semaine sont consacrées au dessin de la *tête* et des extrémités, d'après des estampes ou photographies et d'après la bosse.

Dans les classes de rhétorique et de philosophie, deux leçons par semaine sont consacrées au dessin de *torses* et *académies*, d'après des estampes ou photographies et d'après la bosse.

Une leçon par quinzaine, à partir de la classe de troisième inclusivement, a pour objet le dessin des *formes artificielles*, édifices, vases, candélabres, meubles et ornements de tous genres.

A la fin de la dernière année du cours, les élèves reproduisent quelques modèles d'ornements en couleur.

Pendant l'année de mathématiques spéciales, les élèves sont mis en état de reproduire avec fidélité et promptitude une *académie ombrée au crayon*, d'après leur dessin modèle.

Les modèles sont tous empruntés aux grands maîtres de l'art. Ils ne sont admis dans les classes de dessin qu'après avoir été approuvés par le ministre de l'instruction publique.

Au dessin de la figure humaine doit s'appliquer, comme à celui des formes artificielles, et avec le même fruit, l'exercice de la reproduction de mémoire, qui en grave dans les imaginations les types les plus parfaits.

A la fin de chaque année, les élèves sont tenus de présenter un nombre déterminé de feuilles dont l'ensemble doit constituer un cours gradué de dessin.

2.—Subjects of Study and Time Table of the *École Municipale Turgot* at Paris.

Subjects of Study.

Facultés.	Année préparatoire.	1re Année.	2e Année.	3e Année.	Année complémentaire.
Enseignement religieux	L'ancien et le nouveau Testament.	Les quatre premiers siècles de l'ère chrétienne.	L'histoire de l'Eglise jusqu'à nos jours et son influence sur la civilisation.	Le dogme et la morale du Christianisme.	
Langue Française	Grammaire, orthographe, analyse grammaticale.	Compléments de grammaire et d'orthographe, analyse logique.	Notions de grammaire générale, étymologies et familles de mots, style et composition.	Style et composition; éléments de littérature.	Révision et compléments du cours.
Langue Anglaise ou Allemande.	- - - -	Eléments de grammaire, lexicologie, versions.	Grammaire (syntaxe), versions et thèmes.	Versions, compositions Allemandes ou Anglaises, conversation.	
Mathématiques	Calcul arithmétique, système légal des poids et mesures.	Arithmétique théorique et pratique, premiers éléments de Géométrie.	Compléments d'Arithmétique; Géométrie plane, éléments d'Algèbre;—applications.	Logarithmes, progressions et annuités; Géométrie de l'espace; Trigonométrie rectiligne;—applications.	Binôme de Newton; Géométrie descriptive (éléments de coupe des pierres et de charpente; théorie des ombres et de la perspective); géométrie analytique.
Histoire naturelle	Premières notions	Physiologie avec ses applications à l'hygiène; Zoologie.	Physiologie végétale, Botanique, notions agricoles.	Minéralogie et Géologie	Compléments et applications à l'industrie.
Chimie	- - - -	- - - -	Notions élémentaires de Chimie générale.	Chimie générale et manipulations.	Compléments de chimie; analyse chimique.
Physique et Mécanique	- - - -	- - - -	Eléments de Physique expérimentale.	Eléments de Mécanique	Compléments de physique et de mécanique.
Histoire	Histoire sainte; les grands empires de l'Orient.	Histoire ancienne (la Grèce et Rome).	Histoire de France	Histoire générale (moyen âge et temps modernes).	
Géographie	Éléments de géographie générale et construction de cartes.	Géographie générale, précédée de notions de cosmographie et de géographie physique.	Géographie physique, politique et administrative de la France.	Géographie commerciale et industrielle.	
Comptabilité	- - - -	Premières notions du commerce et de la comptabilité.	Comptes courants portant intérêt, Tenue des livres.	Monnaies, poids et mesures des pays étrangers; Changes et arbitrages; Comptes en participation du commerce et de la banque.	
Calligraphie	Exercices élémentaires	Principes et exercices; Anglaise expédiée.	Anglaise expédiée et posée; Ronde.	Ronde et bâtarde; applications des différents genres d'écriture.	
Dessin a main levée	Premiers éléments	Dessin d'ornement: trait	Dessin d'ornement: ombres	Ornement d'après la bosse; Modelage.	Ornement et figure d'après la bosse.
Dessin Géométrique	Définitions, exercices élémentaires.	Lignes, surfaces, éléments de lavis.	Solides, projections, pénétrations, lavis.	Épures, architecture, machines.	Lever de bâtiments et de machines.
Chant	Intonation, ton d'*ut* majeur, clef de *sol*, mesures 2/4, 3/4, 4/4, dictée vocalisée.	Intonation, dièzes, bémols; ton de *la* mineur, clef de *fa*, mesures 6/8, 9/8, 12/8; dictée écrite.	Intonation, tons majeurs et mineurs, clef d'*ut*, modulations, exercices sur toutes les mesures.	Intonation et mesures sur toutes les clefs, notions d'harmonie, basse chiffrée.	

Time Table.

Indication des Divisions.	Jours.	De 8 h. à 9 h.	De 9 h. à 10 h.	De 10 h. à 11 h.	De 11 h. à 12 h.	De midi à 1 h.	De 1 h. à 2 h.	De 2 h. à 3 h.	De 3 h. à 4 h.	De 4 h. à 5 h.
Année complémentaire.	lundi	Étude.	Étude.	Mathématiques.	Histoire naturelle.	Récréation.	Etude.	*Dessin d'ornement.*		Étude.
	mardi	Id.	Id.	Mathématiques.	Phys. et Mécaniq.	Id.	Id.	*Mathématiques spéciales.*		Id.
	mercr.	Id.	Français.	Mathématiques.	Histoire naturelle.	Id.	Id.	*Dessin géométrique.*		Id.
	jeudi	Id.	*Mathématiques spéciales.*		Chimie.					
	vendr.	Id.	Étude.	Mathématiques.	Phys. et Mécaniq.	Id.	Id.	*Dessin d'ornement.*		Id.
	samedi	*Dessin géométrique.*		Mathématiques.	Chimie.	Id.	Id.	*Mathématiques spéciales.*		Id.
3e Année	lundi	*Dessin d'ornement.*		Mathématiques.	Chimie.	Récréation.	Étude.	Français.	Anglais et allemand.	Étude.
	mardi	Étude.	Mécanique.	Mathématiques.	Étude.	Id.	Écriture.	Comptabilité.	Histoire.	Chant.
	mercr.	Id.	Histoire naturelle.	Mathématiques.	Id.	Id.	Étude.	Français.	Anglais et allemand.	Étude.
	jeudi	Id.	Chimie.	*Dessin géométrique.*						
	vendr.	Enseignt religieux.	Mécanique.	Mathématiques.	Étude.	Id.	Étude.	Français.	Anglais et allemand.	Étude.
	samedi	*Dessin géométrique.*		Mathématiques.	Id.	Id.	Géographie.	Comptabilité.	Histoire.	Chant.
2e Année	lundi	Enseignt religieux.	Mathématiques.	*Dessin d'ornement.*		Récréation.	Anglais et allemand.	Étude.	Français.	Étude.
	mardi	Étude.	Mathématiques.	Physique.	Étude.	Id.	Géographie.	Histoire.	Comptabilité.	Chant.
	mercr.	Id.	Mathématiques.	Histoire naturelle.	Id.	Id.	Anglais et allemand.	Étude.	Français.	Étude
	jeudi	*Dessin géométrique.*		Chimie.	Id.					
	vendr.	Étude.	Mathématiques.	Physique.	Id.	Id.	Anglais et allemand.	Étude.	Français.	Étude.
	samedi	Id.	Mathématiques.	*Dessin géométrique.*		Id.	Écriture.	Histoire.	Comptabilité.	Chant.
1re Année. 2e division.	lundi	Étude.	Histoire naturelle.	Mathématiques.	Étude.	Récréation.	Étude.	Anglais et allemand	Français.	Étude.
	mardi	Enseignt religieux.	Histoire.	Mathématiques.	Id.	Id.	Id.	Géographie.	Écriture.	Chant.
	mercr.	*Dessin d'ornement.*		Mathématiques.	Id.	Id.	Id.	Anglais et allemnnd	Français.	Étude.
	jeudi	Étude.	Histoire naturelle.	Comptabilité.	Id.					
	vendr.	*Dessin géométrique.*		Mathématiques.	Id.	Id.	Id.	Anglais et allemand	Français.	Étude
	samedi	Étude.	Histoire.	Mathématiques.	Id.	Id.	Id.	Géographie.	Écriture.	Chant.
1re Année 1re division.	lundi	Étude.	Mathématiques.	Histoire naturelle.	Étude.	Récréation.	Étude.	Français.	Étude.	Anglais et allemand
	mardi	Id.	Mathématiques.	Histoire.	Id.	Id.	Id.	Écriture.	Géographie.	Chant.
	mercr.	Id.	Mathématiques.	*Dessin d'ornement.*		Id.	Id.	Français.	Étude.	Anglais et allemand
	jeudi	Id.	Comptabilité.	Histoire naturelle.	Étude.					
	vendr.	Id.	Mathématiques.	*Dessin géométrique.*		Id.	Id.	Français.	Étude.	Anglais et allemand
	samedi	Enseignt religieux.	Mathématiques.	Histoire.	Etude.	Id.	Id.	Écriture.	Géographie.	Chant.
Année préparatoire.	lundi	Étude.	Mathématiques.	Histoire naturelle.	Étude.	Récréation.	Français.	*Dessin d'ornement.*		Etude.
	mardi	Id.	Mathématiques.	Histoire.	Id.	Id.	Étude.	Écriture.	Géographie.	Chant.
	mercr.	Id.	Mathématiques.	Dessin géométrique.	Id.	Id.	Français.	*Dessin géométrique.*		Étude.
	jeudi	Enseignt religieux	*Construction de cartes.*		Id.					
	vendr.	Étude.	Mathématiques.	Histoire naturelle.	Id.	Id.	Étude.	*Dessin d'ornement.*		Étude.
	samedi	Id.	Mathématiques.	Histoire.	Id.	Id.	Français.	Écriture.	Géographie.	Chant.

3. Specimen of the Programme of the Course on *Législation Usuelle*, in the newly organized *Enseignement Secondaire Spécial*, in France. (*See p.* 511 *of foregoing Report.*)

Législation usuelle.

Préliminaires.

Nécessité d'une puissance publique, et d'une législation pour toutes les sociétés humaines. Sans puissance publique et sans législation, il ne peut y avoir ni ordre, ni justice. Attributions essentielles de la puissance publique. Organisation diverse selon les peuples et les temps. Objet multiple de toute législation. Droit public et administratif. Droit privé (civil et commercial). Droit pénal.

1. Droit public et administratif.

Droit Public.

(Constitution du 14 Janvier 1852, et Sénatus-consultes du 7 Novembre et du 25 Decembre 1852.)

Principes fondamentaux du droit public.—Unité nationale. Droits garantis à tous les citoyens. Obligations imposées à tous les citoyens.

Organisation de la puissance publique.—Ses bases ; l'Empereur chef héréditaire de l'État. Le Sénat. Le Corps Législatif. Le Conseil d'État. L'autorité judiciaire. L'autorité administrative.

L'Empereur chef de l'État.—Notions sommaires sur ses prérogatives en ce qui concerne les rapports de la France avec les autres nations (traités de paix, d'alliance, et de commerce). En ce qui concerne le gouvernement intérieur ; ses rapports avec le Sénat, le Corps Législatif, et le Conseil d'État. Chef du pouvoir exécutif. Ses prérogatives ; maintien de l'indépendance réciproque de l'autorité administrative et de l'autorité judiciaire.

Le Sénat.—Notions sommaires sur son organisation et ses attributions.

Le Corps Législatif.—Notions sommaires sur sa composition, son élection, ses attributions.

L'autorité judiciaire.—Ses attributions générales. Principes de son organisation. Divisions territoriales pour l'administration de la justice. Juridictions ordinaires pour les contestations civiles et les affaires criminelles. Juridictions spéciales. Cour de cassation. Objet de son institution.

Dans quelles formes agissent les organes de la puissance publique.—Sénatus-consultes. Lois. Décrets et règlements d'administration publique. Arrêtés. Jugements et arrêts.

Droit administratif.

Organisation administrative.

Division administrative de la France.—Principes constitutifs. Administration centralisée et hiérarchique. Division administrative de la France en départements, arrondissements, cantons, et communes.

L'administration est *active :* c'est-à-dire agit, délibère et juge les litiges qui naissent à l'occasion des actes, *consultative* et *contentieuse.* L'action administrative est généralement confiée à un agent unique. La délibération appartient à des assemblées ou conseils. L'exercice de la juridiction n'appartient pas exclusivement à des assemblées ou conseils. Renvoi.

Au centre, l'action administrative appartient à l'Empereur et aux ministres. Le Conseil d'État délibère.

Au chef-lieu du département, l'action est aux mains du préfet. Corps délibérants, le conseil de préfecture et le conseil général.

Au chef-lieu d'arrondissements, le sous-préfet. Le conseil d'arrondissement.

Au chef-lieu de la commune, le maire. Le conseil municipal.

De l'Empereur, chef suprême de l'Administration.—Quels sont ses pouvoirs quant au personnel des agents administratifs, quant aux services publics ou matières administratives.

Des ministres.—Dix ministères. Ministère d'État. Justice et cultes. Affaires étrangères. Interieur. Finances. Guerre. Marine et colonies. Instruction publique. Agriculture, commerce, et travaux publics. Maison de l'Empereur et des beaux-arts. Les ministres sont chargés de l'exécution des lois et des décrets impériaux; leur autorité s'éxerce par des arrêtés ou des instructions pour l'organisation ou l'execution des services publics, et par des décisions individuelles concernant les particuliers.

Du Conseil d'État.—Son organisation. Nature diverse de ses attributions.

Des préfets.—Des attributions du préfet comme agent du Gouvernement et comme représentant du département.

Quelques mots sur les décrets de décentralisation préfectorale des 25 Mars 1852 et 12 Avril 1861.

Des secrétaires généraux de préfecture.

Des conseils de préfecture.—Leur composition. Leurs attributions. Ils donnent des avis. Ils assistent le préfet dans l'action administrative. Ils autorisent les personnes morales à plaider. Ils sont juges du contentieux administratif.

Des conseils généraux.—Leur composition. Un conseiller par canton. Mode de nomination.

Le conseil général assiste, éclaire et contrôle le préfets dans la gestion des intérêts spéciaux du département.

Des sessions ordinaires et des sessions extraordinaires des conseils généraux. Quatre sortes de délibérations; 1° délibérations exécutoires par elles-mêmes; 2° deliberations exécutoires après approbation de l'autorité supérieure; 3° avis; 4° vœux. Notions générales sur le budget départemental.

Des sous-préfets.—Chefs de l'administration active dans l'arrondissements; ils n'ont cependant qu'exceptionnellement une autorité directe sur les citoyens. Caractère principal; agents de transmission entre les préfets et les maires ou les citoyens.

Des conseils d'arrondissement.—Leur composition. Réglent sous l'autorité du conseils général, la répartition des contributions entre les communes. Pour le surplus, attributions simplements consultatives.

Des maires et adjoints.—Nommés par l'Empereur ou par le préfet.

Rappel des attributions d'ordres divers dont le maire est investi. Deux sortes d'attributions administratives: 1° agent du Gouvernement; 2° représentant des intérêts spéciaux de la commune.

Agent du Governement, le maire est chargé de la publication et de l'exécution des lois on règlements.

Il exerce une autorité directe en plusieurs matières. Il est notamment chargé de la police municipale et rurale. Il peut prendre, sous la surveillance de l'autorité supérieure, des arrêtés, soit réglementaires (permanents ou temporaires), soit individuels.

Le maire est le mandataire légal de la commune, considérée comme personne civile pour la gestion de ses intérêts speciaux. Ce qu'il peut et doit faire en cette qualité.

Attributions des adjoints.

Des conseils municipaux. Leur composition. Leur mode de nomination. Dix membres au moins, trente-six ou plus, suivant la population. Des élections municipales. Du renouvellement des conseils municipaux.

Quatre sessions ordinaires. Leur durée. Des sessions extraordinaires.

Quatre sortes de délibération des conseils municipaux: —1° délibérations exécutoires par elles-mêmes;—2° délibérations soumises à l'approbation de l'autorité supérieure; 3° avis;—4° vœux.

Du budget communal.

Notions générales sur les agents administratifs auxiliaires pour les différentes branches du service public.

Matières administratives.

Étendue et importance des services publics en France. Nécessité de choisir.

Armée. De son recrutement. Contingent cantonal. Tirage au sort. Du conseil de révision. Causes d'exemption, de dispense. Des soutiens de famille. De l'exonération du service militaire par voie de remplacement. Par

voie de substitution de numéros. Composition de l'armée. Réserve. Garde nationale.

De l'avancement des militaires, au *choix* on à *l'ancienneté.* Du *grade,* qui est une propriété. De *l'emploi,* qui est facultatif pour le Gouvernement. De la *non-activité.* De la *réforme.* De la *retraite.*

Recrutement de l'armée de mer. De l'inscription maritime. Flotte cuirassée et flotte à voiles.

Cultes. Notions sommaires sur l'organisation ecclésiastique de la France. Culte Catholique—archevêchés, evêchés, cures, paroisses. Cultes non Catholiques—Église Réformée ; Église de la Confession d'Augsbourg ; culte Israélite ; culte Musulman ; organisation de ces divers cultes.

Instruction publique.—Organisation administrative spéciale pour l'instruction publique. Enseignement primaire ; écoles publiques et libres ; écoles normales. Enseignement secondaire classique et spécial. Colléges communaux, lycées. Enseignement supérieur. Facultés. Établissements spéciaux. Collége de France. Muséum d'Histoire Naturelle. Observatoire Impérial. Bureau des Longitudes. Institut. Bibliothèques et musées.

Écoles spéciales des ministères de la guerre, de la marine, des finances, des travaux publics.

Travaux publics. Dessèchement des marais. Mines minières et carrières.

Travaux publics proprement dits. Nature diverse des travaux publics. Travaux civils (ponts et chaussées, bâtiments civils). Travaux militaires. Travaux maritimes. Travaux mixtes. Agences diverses chargées de la direction des travaux publics et de leur exécution.

Servitudes imposées à la propriété pour l'execution des travaux publics. Expropriation pour cause d'utilité publique. Déclaration d'utilité publique par l'Administration. Plan parcellaire. Jugement d'expropriation. Indemnité préalable. L'indemnité fixée à l'aimable ou par un jury d'expropriation. Occupation des terrains pour fouilles et extractions de matériaux et pour dépôts, necessaires pour l'execution de travaux publics.

Législation particulière aux travaux de défense militaire. Aperçu de la législation sur les servitudes militaires.

Législation relative au dessèchements des marais.

Législation des mines, minières et carrières. Leur définition. Des concessions de mines. Des permissions d'exploiter les minières. De la surveillance des carrières.

Voir dans la programme pour la législation industrielle ce qui concerne les établissements dangereux, insalubres et incommodes, les brevets d'invention, les marques et les dessins de fabrique.

Voirie.—Acceptions différentes de ce mots. De la grande voirie (routes impériales, départementales, chemins de fer, rivières navigables et flottables). De la petite voirie (chemins vicinaux, rues et places des villes). Quelques détails sur la grande et la petite vicinalité.

Des servitudes d'utilité publique, imposées aux propriétaires riverains des voies de communications. Alignement. Chemin de halage et marchepied.

Fortune publique.

Dépenses et ressources de l'État. Dépenses ordinaires et extraordinaires. Budget de l'État, sa composition. Attributions du ministre des finances quant à la gestion de la fortune publique. Agences centrales et locales pour l'administration et le recouvrement des revenus publics.

Ressources. Notions générales sur le domaine national. Domaine public. Domaine de l'État. Domaine de la Couronne.

Contributions publiques on impôts. Leur importance parmi les ressources de l'État. Principes communs aux contributions publiques. Nature diverse des contributions publiques. Explication des dénominations de contributions directes et de contributions indirectes.

Contributions directes. Contributions directes proprement dites. Taxes assimilées.

Quatre contributions *directes* :—1° l'impôt foncier ; 2° l'impôt personnel et

mobilier ; 3° l'impôt des portes et fenêtres ; l'impôt des patentes. Distinction de ces contributions en impôts de répartition et en impôts de quotité. Principal et centimes additionnels.

Notions générales sur l'impôt foncier. Sur le cadastre.

Notions sommaires sur l'impôt personnel et mobilier. Sur l'impôt des portes et fenêtres. Sur l'impôt des patentes.

Notions sur la rédaction et la mise en recouvrement des rôles. Publication. Voies autorisées pour le recouvrement. Nature diverse des poursuites. Réclamations. Demander en décharge ou réduction. Demandes en remise ou modération. Ce qui les distingue.

Les contributions *indirectes* comprennent principalement les droits sur les boissons, sur les sels, et sur les sucres, les droits d'enregistrement et de timbre, les douanes, les monopoles des postes, des tabacs, et des poudres.

Impôts des boissons. Droits de circulation. Droits d'entrée. Du congé. Du passavant. Du passe-debout. Du transit. De l'exercice. De l'abonnement individuel ou collectif.

Notions sommaires sur l'impôt du sel et des sucres.

Enregistrement. Donne date certaine aux actes. Est un impôt. Les droits d'enregistrement sonts *fixes* ou *proportionnels*. Dans quel cas les uns, dans quel cas les autres. En matière d'actes à titre onéreux et d'actes à titre gratuit.

Aperçu des droits de mutation, des droits d'obligation en matière civile on commerciale, des droits de quittance.

Timbre. Timbre de dimension. Timbre proportionnel. Sanction.

Dépenses publiques. Notions sommaires. Comment elles s'effectuent. Comment il en est justifié. Règlement du budget. Apurement de la gestion des comptables. Attributions de la Cour des comptes.

Voir dans le programme pour la législation industrielle ce qui concerne les douanes, le monopole des tabacs, du papier timbré, des poudres et salpêtres, des postes.

Justice Administrative.

Nature du contentieux administratif.—Il comprend les réclamations élevées contre des actes administratifs, pour violation des obligations imposées à l'administration par les lois on règlements qui la régissent on par les contrats qu'elle à consentis.

Juridictions administratives.—Notions générales sur la compétence, en ce qui concerne les matières les plus usuelles ; préfets, conseils de préfecture, ministres, Conseil d'État.

Du recours au Conseil d'État pour excès de pouvoirs.

4.—TABLE showing the SUBJECTS taught in the *FRIEDRICH-WILHELMS GYMNASIUM* and *REALSCHULE* at BERLIN, and the Number of Hours given weekly to each Subject in each Class of the Two Schools.

Subjects taught.	Gymnasium Classes.							*Realschule* Classes.							United School Classes.			
	Prima.		Secunda.		Tertia.		Quarta.	Prima.	Secunda.		Tertia.		Quarta.		Quinta.		Sexta.	
	I.	II.	I.	II.	I.	II.			I.	II.	I.	II.	I.	II.	I.	II.	I.	II.
	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.
Religious Instruction	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
German	3	3	2	2	2	2	2	3	3	3	3	3	3	3	2	2	3	3
Latin	10	10	10	10	10	10	10	3	4	4	5	5	6	6	10	10	10	10
Greek	6	6	6	6	6	6	6	–	–	–	–	–	–	–	–	–	–	–
French	2	2	2	2	2	2	2	4	4	4	4	4	5	5	4	4	–	–
History	3	3	3	3	3	3	3	3	3	3	2	2	2	2	–	–	–	–
Mathematics	4	4	4	4	3	3	3	5	5	5	6	6	6	6	–	–	–	–
Physics	2	2	2	–	–	–	–	3	2	2	–	–	–	–	–	–	–	–
Arithmetic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	4	4
Natural History	–	–	–	–	2	2	–	–	2	2	2	2	2	2	2	2	2	2
Hebrew	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
English	2	2	2	2	–	–	–	3	3	3	4	4	–	–	–	–	–	–
Geography	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2
Chemistry	–	–	–	–	–	–	–	2	2	2	–	–	–	–	–	–	–	–
Handwriting	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2
Drawing	2	2	2	2	2	2	2	3	2	2	5	1	2	2	2	2	2	2
Totals*	38	38	37	35	32	32	30	31	32	34	35	31	32	32	30	30	28	28

* Gymnastics and singing have each two hours a week besides. The two hours of Hebrew are for those boys only who are going to study theology.

5.—Table showing the Subjects taught in the Higher Burgher School at Carlsruhe, and the Number of Hours given weekly to each Subject in each Class of the School.

(Class I. is the lowest, Class VII. the highest.)

Subjects taught.	Classes.						
	I.	II.	III.	IV.	V.	VI.	VII.
	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.
Religious Instruction	2	2	2	2	2	2	2
German	5	4	4	4	3	3	3
French	5	5 in summer, 4 in winter.	5	5	4	4	4
English	–	–	–	3	3	3	3
Latin	–	5	4	4	4	2	3
Arithmetic	4	4	3	2	3	3	–
Geometry	–	–	1	3	2	2	2
Algebra	–	–	–	1	2	3	3
Geography	3	2	2	2	1	–	–
History	–	–	2	2	2	2	2
Natural History	2	2	2	2	–	–	–
Physics	–	–	–	–	3	2	2
Chemistry	–	–	–	–	–	2	2
Elementary Mechanics	–	–	–	–	–	–	2
Calligraphy	2 in summer, 3 in winter.	2	2	1	–	–	–
Freehand Drawing	2	2	2	2	2	2	2
Linear Drawing	–	–	–	–	2	2	2
Gymnastics	2	2	2	2	2	2	2
Singing	2	2	2	2	2	2	2
Weekly total of hours of instruction* in each class.	29 in summer, 30 in winter.	32 in summer, 31 in winter.	33	37	37	36	36

* Four of them in each class are, it will be observed, for gymnastics and singing. In the Higher Burgher Schools which have no Latin, and in the Swiss *Realschulen*, French and the mother tongue get, for the most part, the hours saved from Latin.

6. School-course of the *Friedrich-Wilhelms Gymnasium* and *Realschule* at Cologne*, for the Year 1863–64.

I. *Prima.*

Religious Instruction.—1. *Catholic.* Church history from the time of the Reformation, chiefly in biographical form; moral philosophy and dogmatics (2 hours a week). 2. *Protestant.* Church history, beginning with the main part of the Acts of the Apostles in the Greek; for the Reformation period, special attention paid to the writings in which the Lutheran creed is established (2 hours).

* The work of the gymnasial classes in this school will represent the work of an average gymnasium anywhere in Prussia. The work of the *real* classes will represent that of an average *Realschule.* The work of a gymnasium of the highest class is represented by the work of Schulpforta (see p. 250); that of a *Realschule* of the highest class by the work of the Basle *Realgymnasium* (see p. 255).

As I have remarked in a preceding note, the difference between the work of a Prussian *Realschule*, and that of a Swiss *Realschule* or a Prussian Higher Burgher School, consists mainly in the substitution, in the latter, of French and the mother tongue for Latin.

German.—The *Wilhelm Tell* and *Walk* of Schiller read and explained. The logical theory of conceptions, judgments, and conclusions. Discussion of the monthly German essays, one of which is done in class (3 hours).

Latin.—The *Pro Sestio* and *Orator* of Cicero, and the *Germania* of Tacitus, read in class. For private reading in connexion with the Latin essays, Liv. XXIII., XXXIV., XXXV., and part of IV., with Cic. *Ad Lentulum*, 9. Latin essays and extemporary practice in Latin. Horat. *Carm.* parts of L. III. and IV.; *Epod.* 2. *Epist.* I., 1, 2, 6, 19, 20. Eight Odes by heart (8 hours).

Greek.—Hom. *Il.* VIII.–XIV., read in class; and for private reading under the master's superintendence, Hom. *Il.* XV.–XVII. Plato, *Apol. Socr.* and *Crito.* Demosth. *Pro Corona* and Æschines *Contra Ctesiph.* from § 130 to the end (the master having gone through the substance of the first half of the oration in the introduction to the Demosthenes lesson). Grammar and extemporary practice in Greek, with a written Greek exercise once a fortnight (6 hours).

French.—Montesquieu, *Grand. et Déc. des R.* to chap. 12. Molière, *L'Avare.* Grammar, and oral translation from an exercise book. A written French exercise once a fortnight, besides French composition in class (2 hours).

Hebrew.—Repetition of the accidence, with special attention to the irregular verbs; the most important points of the syntax. Passages from an exercise book, with several psalms and Isai. XV. and XVI. read (2 hours).

History.—German history during the middle age, and a cursory view of the history of the other States of Europe during the same period. Repetition of Greek history, with reference to the following original sources; Herod. IV., 130–142; V., 23, 24, 35–38, 49–52, 96, 97; VI., 94–120; VII., 176, 177, 208–229; VIII., 75–90. Thucyd. I., 1–20, 126–138 (3 hours).

Mathematics.—Logarithms, trigonometry, equations of the second degree with more than one unknown quantity, indeterminate equations of the first degree, progressions with application to compound interest and annuities, problems in plane geometry and trigonometry (4 hours).

Physics.—Mechanics of solid, fluid, and gaseous bodies (2 hours).

II. *Obersecunda.*

Religious Instruction.—1. *Protestant.* Introduction to the text of the Old and New Testament (2 hours). 2. *Catholic.* History of revelation before Christ, and portion of history of Christian revelation, noticing points of apologetic where they come in (2 hours).

German.—*Nibelungenlied,* Aventiure I.–XX. read and explained. Correction of monthly German essays. Practice in oral delivery and declamation (2 hours).

Latin.—In the winter half, Liv. II., III. (with some omissions), IV., 1–4; in the summer half, Cic. *De Senect., Pro Rege Deiot., Pro Ligario.* For private reading, Cæs. *De B. G.* I., and Liv. V. portions of VI., and XXI., by all the class; besides these, Liv. XXII., and portions of XXIII. by one part of the class; Liv. I., and either VI. or VII. by the other part. Zumpt's grammar. Weekly exercises out of Süpfle's exercise book. Extemporary practice in Latin writing and speaking. Main points of the theory of style. From January onwards a Latin essay every four or five weeks. Virg. *Æn.* VIII., IX., by extracts; 80 lines got by heart. Select passages from Sepert's collection; some passages got by heart. Practice in Latin metres (10 hours).

Greek.—Herod. VI., 94 to the end, and nearly all VII.; the doctrine of cases from Halm's *Elements,* and exercises from the same; composition in class. Hom. *Od.* ϵ—μ, and for private reading, τ—ψ; 150 lines got by heart (6 hours).

French.—Capefigue's *Histoire de Charlemagne* to chap. 12. Knebel's grammar from the pronouns to the use of participles. Every fortnight a French task; oral and written translation and composition (2 hours).

Hebrew.—The accidence as far as the irregular verbs. Exercises in reading and translating from Brückner (2 hours).

History.—Roman history (2 hours).

Mathematics.—Proportion of figures; determination of areas; solution of plane geometrical problems; involution and evolution; equations of the first degree with more than one unknown quantity, and of the second degree with one unknown quantity (4 hours).

Physics.—In the winter half, theory of magnetism and electricity; in the summer half, theory of heat (2 hours).

III. *Untersecunda.*

Religious Instruction.—Same as in *Obersecunda.*

German.—Cursory view of German poets from Friedr. von Spee to Klopstock, in Deyck's selection. Explaining poems of Schiller. Poems of Schiller and popular ballads got by heart. Practice in declamation. Every three or four weeks an essay (2 hours).

Latin.—Cic. *Pro. Arch. Poet., Pro Reg. Dei., Pro Sex. Rosc. Amer.*, and Liv. XXI., read and explained. Cic. *Pro. Arch.* 1–8 got by heart. For private reading, Cæs. *De B. C.* and Cic. *Pro Lig.* In Zumpt's grammar, *Syntaxis Congruentiæ*, the doctrine of cases to the dative inclusively, the doctrine of tenses, and of the indicative and conjunctive moods. Oral and written translations from Süpfle's exercise book. A theme weekly. Extemporary practice in Latin. Virg. *Æn.* I., II.; 200 lines got by heart; practice in Latin metres, (10 hours).

Greek.—Hom. *Od.* VIII.–XI. Select passages by heart. Repetition of the irregular verbs. Syntax of the article and of the pronouns from Halm's practising book, part 2. Every fortnight an exercise done either at home or in school. Xenoph. *Anab.* I., II. Two chapters by heart (4 hours).

French.—Syntax as far as the pronoun; translations from Probst's practising book for higher forms. A task every fortnight. The first 10 chapters of Michaud's *Histoire de la Troisième Croisade* read (2 hours).

History.—Grecian history (3 hours).

Mathematics.—Decimal fractions, proportions, equations of the first degree, with one unknown quantity. Main properties of the triangle, the proposition of Pythagoras (Eucl. I., 47), proportion of lines, similarity of triangles, geometrical problems (4 hours).

IV. *Tertia.*

Religious Instruction.—1. *Catholic.* The means of grace according to the Ratisbon Catechism; lives of certain saints; explanation of the Sunday Gospels. 2. *Protestant.* The life of Christ from St. Matthew's Gospel; the Acts of the Apostles. The Epistle of James and the First Epistle of Peter explained; Bible passages learnt by heart (2 hours).

German.—Practice in reading and narrating. Recitation of poems got by heart. An essay every three weeks, with lessons on punctuation and the formation of sentences (2 hours).

Latin.—The syntax of the verb, from Siberti; repetition of the work of the class below. Oral translations from Süpfle, extemporary practice in Latin, and a theme weekly. Cæs. *De B. G.* III.–VIII., and Ovid *Metam.* VI. 146–312, VII. 1–300, VIII. 612–886, X. 1–219, XIII. 1–400, read. Practice in Latin metres. Cæs. *De B. G.* VI., 12 sqq., Ov. *Metam.* VI. 146–312, VII. 1–100, got by heart (10 hours).

Greek.—Repetition of work of class below. The verbs in μι and the *verba anomala*, with occasional lessons in etymology and remarks on syntax. Selections from Xenoph. *Anab.* I.–III., the whole of IV., and V. 1–2, read. Translation from Dominicus's lesson book, and every fortnight a task from the same. From Easter onwards 1 hour a week of Homer, and 40 lines got by heart (6 hours).

French.—The pronoun and verb from Krebel's school grammar. Exercises from Probst's exercise book for middle forms (2 hours).

History and Geography.—Repetition of geography of the mountains and waters of Germany; political geography of Germany. German history to 1648, thence Prusso-German history to 1815 (3 hours).

Mathematics.—Algebra in Heis's book to § 25 inclusive. Decimal fractions. Geometry to the properties of the circle inclusive (3 hours).

Knowledge of Nature (*Naturkunde*).—In the winter half, zoology; in the summer half, botany (2 hours).

V. *Quarta.*

Religious Instruction.—1. *Protestant.* Acts of the Apostles read and explained; many Bible passages and Church hymns learnt by heart. 2. *Catholic.* The Apostles' Creed from the Ratisbon catechism. Portions of the Lives of Saints (2 hours).

German.—Practice in orthography and punctuation. An essay every three weeks. Practice in the recitation of poems learnt by heart, and in repeating the substance of prose narratives which have been read and explained (2 hours).

Latin.—The concords and the cases from Siberti, extemporary practice, and oral and written translation from Spiess's exercise book for middle forms; every week an exercise; about every three weeks a trial task. Corn. Nep. *Agesilaus, Phocion, Timoleon, Hannibal, Miltiades, Themistocles, Aristides, Datames, Epaminondas, Pelopidas*, read. Lessons on the hexameter, trimeter, and Latin prosody from Siberti; practice from Siebelis's *Tirocinium;* about 100 lines got by heart (10 hours).

Greek.—Accidence as far as the *verba contracta*, from Buttmann's small school grammar; Dominicus's *Delectus*, and written exercises (6 hours).

French.—The regular verb from Knebel's French school grammar, oral and written translation into French from Probst's exercise book (2 hours).

History and Geography.—Grecian history to the death of Alexander the Great. Roman history to the fall of the Republic. Geography of the non-German States of Europe, the geography of their mountains and waters being continually repeated (3 hours).

Mathematics.—Elements of plane geometry as far as the work of *Tertia*. In arithmetic, the rule of three and its application to profit and loss (*Vertheilungsrechnung*), partnership, and interest (3 hours).

VI. *Quinta* A.

Religious Instruction.—1. *Catholic.* Bible history of the New Testament; so much of the catechism as relates to the Commandments and the Church. 2. *Protestant.* Bible history of the New Testament from Zahn; repetition of Old Testament history. Several psalms and nine church hymns learnt by heart (3 hours).

German.—In the winter half, every fortnight an exercise in orthography; from Easter onwards, an essay. Explanation and repetition of pieces of prose and verse, with practice in declamation (2 hours).

Latin.—Going over again and finishing the accidence, with the *verba defectiva* and *verba anomala;* certain rules of syntax from Siberti's grammar; written and oral translations from Spiess's exercise book; every week a piece of Latin writing for correction, and every month a trial task (10 hours).

French.—French accidence as far as the regular verbs; written and oral translations from Ploez's book. From February onwards a task every fortnight (3 hours).

Geography and History.—Political geography of the southern and western countries of Europe. Historical incidents taken in connexion with this. Rivers and mountains of Europe again gone over (2 hours).

Arithmetic.—Fractions, rule of three with fractions.

Knowledge of Nature.—In the winter half, description of birds from stuffed specimens; in the summer half, description of plants. Elements of the Linnæan system (2 hours).

VII. *Quinta* B.

Religious Instruction.—Same as in *Quinta* A.

German.—In the winter half, every fortnight a dictation lesson; in the summer half, every three weeks an essay. Practice in delivery of poems learnt by heart, and in relating the substance of prose pieces read; reading and explanation of verse and prose pieces from the reading book (2 hours).

Latin.—Repeating and finishing the accidence in Siberti's grammar; the rules for the accusative with the infinitive and for participles, in Spiess's exercise book; oral and written translations from the same; an exercise weekly (10 hours).

French.—The accidence as far as the regular verb; oral and written translations. From February onwards a task every fortnight (3 hours).

Geography and History.—Repetition of the rivers and mountains of Europe; political geography of the western and southern States of Europe. Occasional mention of historical events (2 hours).

Arithmetic.—As in *Quinta* A (2 hours).

Knowledge of Nature.—As in *Quinta* A (2 hours).

VIII. *Sexta* A.

Religious Instruction.—1. *Catholic.* Bible history of the Old Testament. The devotional life of the Catholic Church, with the passages of the catechism that apply to this and sanction it. 2. *Protestant.* Bible history of the Old Testament as far as Solomon; going over the Ten Commandments and explaining them; learning several church hymns by heart (3 hours).

German.—Practice in orthography; practice in reading and in the recitation of simple pieces of poetry (2 hours).

Latin.—The regular accidence from Siberti's school grammar and Spiess's exercise book (10 hours).

Geography.—Introductory notions; the five divisions of the earth, the seas, islands, and peninsulas; the principal countries; mountains and rivers of Europe (2 hours).

Arithmetic.—In the winter half, the first four rules with whole numbers. In the summer half, the elements of fractions (4 hours.)

Knowledge of Nature.—In the winter half, zoology; in the summer half, botany (2 hours).

IX. *Sexta* B.

Same work as in *Sexta* A.

I. *Real-secunda.*

Religious Instruction.—(Goes with *Secunda* of the gymnasial classes).

German.—Explanation and recitation of poems from Deyck's collection; brief notice of the chief poets of the last century. An essay once a month; in connexion with the essay, the proper mode of arranging and constructing such compositions is elucidated (3 hours).

Latin.—Cæs. *Comment.* I., II., read. Doctrine of the hexameter, pentameter, and iambic senarius, from Siebelis; doctrine of Latin prosody, from Siberti. Siberti's grammar: doctrine of cases gone over afresh, doctrine of tenses, of the conjunctive and of the infinitive mood, gone through up to section 674. A task once a fortnight. Oral translations from Spiess, in connexion with grammar; composition (4 hours).

French.—(The lessons are given in French, and the pupils have to speak French.)—The French expedition to Egypt (1798-1801) read from Thiers, in Jäger and Rhein's extracts, and the history of Sobiesky, in Goebel's collection. Every week a task; six essays of some length; a great deal of trial work and extemporary practice (4 hours.)

English.—Most of the pieces in Schütz's characters from English history read. Gray's *Elegy* and other longer poems got by heart. Grammar in Degenhardt's school grammar up to section 265. Every week some written exercise, and a great deal of trial work, extemporary practice, and dictation (3 hours).

History and Geography.—History of Greece. Political geography of Germany, and its physical geography again gone over. View of the historical development of the several German states; British North America (3 hours).

Mathematics.—Conclusion of plane geometry; problems in plane geometry. Involution and evolution; equations of the first degree with more than one unknown quantity, and of the second degree with one unknown quantity. Harder problems from the different parts of arithmetic (5 hours).

Physics.—Introduction to physics; magnetism; electricity; heat (2 hours).

Chemistry.—Metalloids (2 hours).

Mineralogy.—Introduction; teaching of characteristics; crystallography in more detail, from Kopp; description of the chief minerals (2 hours).

II. *Real-Tertia.*

Religious Instruction.—(Goes with *Tertia* of the gymnasial classes.)

German.—Practice in reading and narrating. Doctrine of the five parts of the sentence. Every three or four weeks an essay; in connexion with this, practice in declamation. Popular ballads got by heart (3 hours).

Latin.—Reading from Jacobs's second elementary book. Siberti's grammar; doctrine of the cases; the accidence again gone over. Oral and written

translation of the passages in Spiess's exercises for *quarta* and *tertia* that illustrate the doctrine of cases. Every fortnight a task. Extemporary practice in Latin (5 hours).

French.—Paganel's *History of Frederick the Great*, in Goebel's collection. Many pieces from Ploetz's Chrestomathy got by heart. Ploetz's grammar, course II. to lesson 58. Every week a task; a great deal of trial work and extemporary practice (4 hours).

English.—Many chapters of Sir Walter Scott's *Tales of a Grandfather* read. Grammar in Degenhardt's elementary book to lesson 63 inclusive. Every week some written exercise; a great deal of trial work. Many poems learnt by heart (4 hours).

History and Geography.—History of the Middle Age, and chief points of Prussian history. Physical and political geography of the non-German States of Europe (4 hours).

Mathematics.—Main properties of the triangle; the proposition of Pythagoras; proportion of lines; similarity of triangles; area of a polygon. Decimal fractions, proportions, equations of the first degree with one unknown quantity. Interest, rule of three inverse, double rule of three, alligation (*Mischungsrechnung*) (6 hours).

Knowledge of Nature.—In the winter half, zoology; in the summer half, botany (2 hours).

III. *Real-Quarta.*

Religious Instruction.—(Goes with *Quarta* of the gymnasial classes.)

German.—Reading and explaining select pieces out of the reading book; poems of Uhland got by heart and declaimed; frequent practice in orthography. An essay once a fortnight (3 hours).

Latin.—Going over the irregular, anomalous, and defective verbs again; exercises in rules of syntax; oral and written translation from Latin into German from Jacobs's elementary book, chap. I, 50–100, and from German into Latin from Spiess's exercise book; every week a piece of composition in class and every month a trial task (6 hours).

French.—A number of passages from Rollin's *Les Hommes illustres de l'Antiquité* read in Goebel's collection. A number of poems from Ploetz's Chrestomathy learnt by heart. Grammar: going again over Ploetz's first course, and his second course to lesson 30. Every week a written exercise, with constant extemporary practice and passages translated from French and then turned back into French again (5 hours).

Geography and History.—Thorough repetition of the geography of the mountains and waters of central Europe; political geography of Germany; Grecian and Macedonian history to the death of Alexander the Great; Roman history from Romulus to Augustus (4 hours).

Mathematics.—Exercises in arithmetic continued, particularly in the application of the rule of three to profit and loss, partnership, and interest. Plane geometry as far as the properties of the circle inclusive. Algebra in Heis's exercises as far as section 25 inclusive (6 hours).

Knowledge of Nature.—In the winter half, zoology; in the summer half, botany (2 hours).

Technical Acquirements.

Drawing (from *Oberprima* to *Tertia* of the gymnasial classes).—Freehand drawing from studies by Calame, Ary Scheffer, Paul Delaroche, Schinkel, Hubert, and others; architectural and machine drawing; washing in of shadows with Indian ink; water-colour drawing (2 hours.)—*Quarta:* Elements of perspective drawing, with use of the compass and ruler; drawing from wooden models, with hatching; explanation of the action of light on the surfaces of bodies; free-hand drawing from copies; outline of features and heads with the shadows indicated. Drawing of ornaments, leaf-forms, arabesques, &c., with the original enlarged; shading with the stump; coloured drawings (2 hours).—*Quinta* A and B: explanation of lines, angles, and figures, with exercises in them; commencement of perspective (2 hours). *Real-secunda:* architectural and machine drawing. Free-hand drawing from

copies and from plaster models. Line and shadow perspective. Drawing with two chalks and the stump. Water-colour drawing (2 hours).—*Tertia:* Drawing from copies and from nature (bodies), in connexion with line and colour perspective to the extent proper for the class (2 hours).—*Quarta:* As in *Quarta* of the gymnasium (2 hours.)

Writing.—In *Real-Quarta* two hours a week; in the two *Quintas* and the two *Sextas*, 3 hours.

Singing.—2 hours a week throughout the school.

Gymnastics.—For these the school is in four divisions; the highest division has 2 hours' instruction a week, the other three have each 1 hour.

Subjects set at the Leaving Examination (Abiturienten-examen) *of the Year.*

Divinity Essay. 1, for Protestants: The difference between the slavish and the child-like fear of God (Romans, 8, 15; and 1 John, 4, 18). 2, for Catholics: How far is the decalogue binding under the new dispensation?

German Essay.—What are the grounds for the division of history into ancient, mediæval, and modern?

Latin Essay.—Romanos Cannensi calamitate accepta majores animos habuisse quam unquam rebus secundis (Cic.)

Hebrew.—Gen. 22, 1–6.

Mathematics.—(a.) Two circles and a straight line being given, to find a point in the straight line from which the tangents drawn to both circles shall be of equal length. (b.) In a perpendicular parallel-truncated cone, given the radius of the larger surface $r = 11$, the side line $s = 10$, and the angle of inclination of the side line towards the larger surface $\varphi = 42^\circ\ 11'$, to find the height, the radius of the smaller surface, the contents and the crown of the truncated cone, and what is the height of the cone required to complete it? (c.) To calculate the unknown quantities in the following equations:

$$x + y + x^2 + y^2 = 86$$
$$3\,x\,y\,2\,x^2 + 2\,y^2 = 253$$

(d.) The base of a triangle is 14, the sum of the squares of the two other sides 394 and the contents 84. How great is the angle at the apex, and how great are the two other sides?

(The candidates had, besides the above, the regular papers in Latin, Greek, and French. Six obtained the certificate of ripeness. Two of the six proposed to study theology at the university; one, to study medicine; one, law; one, philology; and one had not yet decided what to study. Two did their paper-work so well that they were excused the *viva voce* examination.)

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7. Plan of a Year's Schoolwork at Schulpforta, showing the Matters of Study and the Number of Hours allotted weekly to each Subject.

I. *Prima.*

Religious Instruction (2 hours a week).—In the summer half, the Epistle to the Romans in the original Greek; in the winter half, Church History, Part II.

Latin (10 hours).—In the summer half, Cic. *Brut.* c. 21 to the end (with some omissions); Horat. *Ep.* II., 1–3; Tac. *Ann.* XIII., 1–33. In the winter half, Horat. *Carm.* I., *Sat.* I. (parts omitted); Cic. *De Fin.* lib. V., and Tac. *Ann.* I.–III. (parts omitted), essays, exercises, extemporary practice in Latin, and verse composition.

Greek (6 hours).—The three Olynthiac orations of Demosthenes, his oration on the Peace, and his second Philippic; Plato's *Protagoras;* the *Trachiniæ* of Sophocles, exercises, extemporary practice in Greek, and practice of Greek versification.

Hebrew (2 hours).—In the summer half, repetition of the grammar as far as the irregular verb in Gesenius, section 1–61; *Genesis*, c. IV.–VI. In the winter half, repetition of the irregular verbs in Gesenius, section 61–77; *Psalms*, 118–134. Exercises and trial work.

German (3 hours).—Review of the history of modern German literature from

Opitz to the beginning of the 19th century. German essays and practice in elocution.

History (in the summer half 2 hours, in the winter 3 hours).—In the summer half, history of the Middle Age to the Hohenstaufen; in the winter, from the Hohenstaufen to the Reformation.

Mathematics (4 hours).—In the summer half, theory of equations of the first and second degree; extension of the properties of the circle. In the winter half, higher series, combinations, functions, the binomial theorem. Paper-work and extemporary practice.

Physics (in summer 1 hour, in winter 2 hours).—In the summer half, magnetism, electricity, electro-magnetism; in the winter half, heat, meteorology.

II. *Ober-Secunda.*

Religious Instruction (2 hours).—In the summer half, the First Epistle of Peter and the Epistle of James in the original. In the winter half, Church History, Part I.

Latin (10 hours).—Cic. *Verr.* Act. II., L. IV., c. 32–67, and L. V.; Virg. Æn. II., III.; Liv. I., II. (parts omitted). Essays, exercises, extemporary practice in Latin, and practice in verse composition.

Greek (6 hours).—In the summer half, Hom. *Il.* X., XII.; Plutarch. *Cleomenes.* In the winter half, Hom. *Il.* V., VI.; Herod. VII., 201 to the end; VIII., 74–100; IX., 50–76. Exercises and trial work.

Hebrew (2 hours).—Repetition of the irregular verbs in Gesenius, section 61–77. Exercises, trial work, and the history of Joseph in Gesenius's reading book.

German (2 hours).—In the summer half, the outlines of modern German prosody and versification. In the winter half, explanation of portions of the *Nibelungen Lied.* Essays, and practice in versification.

History (3 hours).—Roman history: in the summer half, second part from the second Punic war onwards; in the winter, first part.

Mathematics (4 hours).—In the summer half, progressions and compound interest; commencement of plane trigonometry. In the winter half, arithmetical work of previous half again gone over; quadratic equations and logarithms; previous geometrical work again gone over; working of problems on paper.

III. *Unter-Secunda.*

Religious Instruction (2 hours).—In the summer half, Old Testament history, second portion. In the winter half, catechism repeated, and the first part of it illustrated; reading from the first half of the Old Testament; Bible passages and hymns by heart.

Latin (in summer 12 hours a week, in winter 11).—In the summer half, Cic. *De Cn. Pomp. Imperio;* Ovid. *Fast.* IV.; Sallust, *Catilina;* Zumpt's *Syntaxis ornata,* extemporary practice in Latin, exercises, trial work, and verse practice. In the winter half, Cic. *Pro. Sext. Rosc. Amer.;* Liv. V. (parts omitted); Ovid. *Fast.* IV., V.; *Syntaxis ornata,* exercises, and verse practice.

Greek (in summer 5 hours a week, in winter 6).—In the summer half, Hom. *Od.* XX., XXI.; Arrian. *Anab.* III., IV. to c. 8 (with some omissions). In the winter half, Hom. *Od.* XXII., XXIII.; Arrian. *Anab.* IV., 8–12, and 17 to end, V. 2; doctrine of moods, exercises, and trial work.

Hebrew (2 hours).—Sounds of the letters, and accidence as far as the regular verb inclusive. Practice in reading and writing, paradigms, and easy exercises.

German (2 hours).—Outlines of the etymological part of German grammar, with a survey of the main epochs of the development of the language. Essays for correction.

History (3 hours).—Greek history: in the summer half, second portion; in the winter half, first portion.

Mathematics (4 hours).—In the summer half, theory of proportion and its application; theory of the similarity of figures. In the winter half, involution and evolution; principal propositions of the similarity of figures.

IV. *Ober-Tertia.*

Religious Instruction (2 hours).—In the summer half, the third portion of the catechism; in the winter half, St. Mark's gospel and the Acts of the Apostles.

Latin (in summer 12 hours a week, in winter 11).—In the summer half, Cæs. *De B. C.* III. (parts omitted); Ovid. *Metam.* XII. (parts omitted). In the winter half, Cæs. *De B. C.* I. and II. (parts omitted); Ovid. *Metam.* VII. (parts omitted). Grammar: in summer, the tenses and moods; in winter, the cases and moods. Written exercises, trial work, and practice in Latin versification.

Greek (6 hours).—Xenoph. *Anab.* II., III., and Lib. VI. skimmed. For private reading, Lib. VII. Grammar: irregular verbs and the cases. Written exercises and trial work.

German (3 hours).—Essays and practice in reading and recitation.

History and Geography (3 hours).—In the summer half, the history of Brandenburg and Prussia to 1688; in the winter half, Grecian history to 404 B.C.

Mathematics (4 hours).—Further practice in algebra and simple equations; theory of the equality of areas of rectilinear figures; extemporary exercises; correction of paper work.

V. *Unter-Tertia.*

Religious Instruction (2 hours.)—In the summer half, Old Testament history, first portion. In the winter half, catechism repeated and the first part of it explained; reading from the second half of the Old Testament. Bible passages and hyms by heart.

Latin (11 hours).—In the summer half, Cæs. *De B. G.* VI, 21 to the end; Ovid. *Metam.* III, (parts omitted). In the winter half, Cæs. *De. B. G.* I., and Lib. IV skimmed; Ovid *Metam.* IV, 55–166, 416–604. Grammar: in summer, accidence and the cases; in winter, the cases, and introductory lessons on the moods. Prosody and practice in Latin versification. Written exercises and trial work.

Greek (6 hours).—The mythological stories in Jacobs's Greek Delectus read. Grammar: the accidence, verbs in full, the most important of the irregular verbs, and the prepositions. Written exercises and trial work.

German (3 hours).—Grammar; reading; exercise in the recitation of poems and of prose narratives; correction of essays.

History and Geography (3 hours).—Physical and political geography of Europe, Asia, Africa, America, and Australia. Grecian history to 404 B.C.

Mathematics (4 hours, 2 divisions).—Div. II. Commencement of algebra and its simplest application; comparison of triangles, and the theorems and problems immediately connected with it, Div. I. Going over work of Div. II. again, and exercises in the application of what has been learnt.

French.

(In French the school is divided into five special classes. As a general rule only the boys of *Prima*, *Ober-Secunda*, and *Unter-Secunda* compose these five French classes; the boys in *Ober-Tertia* and *Unter-Tertia* are not admitted to this instruction unless they have some special qualification for it. Each of the five French classes has two hours' work a week.)

First Class.—Correction of written exercises, and criticism of extemporary work. In the summer half, Corneille's *Cid* read; in the winter half, Molière's *L'Avare.*

Second Class.—Grammatical exercises, written and oral. In the summer half, the passages from Raynal, Marmontel, La Harpe, and Mercier in Ideler and Nolte's handbook, read; in the winter half, the first four chapters of Ségur's *Histoire de Napoléon.*

Third Class.—Repetition of the irregular verbs; the moods. Voltaire's *Charles XII.*, Liv. II. and III., read. Written exercises and trial work.

Fourth Class.—The pronoun, and the regular and irregular verbs. *Charles XII.*, Liv. I. and VIII., read. Written exercises and trial work.

Fifth Class.—Accidence to the regular verb, inclusive. Exercises in reading and translation from Leloup's French reading book. Trial work.

Technical Acquirements.

Music and Singing.—A select body of scholars, in two divisions of about 25 each, under two precentors, forms the chapel choir. The rest of the scholars are divided into five singing classes, with one hour's instruction in each class weekly, and more if required. The school has a musical director who teaches instrumental music.

Drawing.—Two hours a week in all classes.

Writing.—Instruction given for one hour weekly, in German hand, Latin hand, and Greek hand. Limited to *Ober* and *Unter Tertia*, each of which is formed into two divisions for this instruction. Very good writers are exempted from this lesson, and bad writers have to attend each division of their class.

Gymnastics.—Two hours a week. In the open playing field in summer, in the large covered gymnasium in winter. The boys are also taught swimming. Botanical excursions during the summer half.

Composition Subjects for the Year.

A. *Latin Essays.*

I. *Ober-Prima.* (In the summer half.)—(1) Eloquentiæ Romanæ ætates. (2) Quæ bello Jugurthino rerum domesticarum in civitatem Romanam inductæ sint commutationes? (3) Quo animo (quo consilio) Tacitus Germaniam conscripserit? (4) Cæsaris de bello civili commentarios non sine quadam Pompeianarum partium obtrectatione conscriptos esse. (5) Cæsar Octavianus rectene ignaviæ arguatur. (6) Neronis crudelitas. (7) Eloquentiam rectiusne Cicero dicat (Brut. § 45) pacis otiique alumnam esse an Tacitus (Dial. 36) rerum publicarum perturbatione et licentia ali et exerceri? (8) Quales sub primis Cæsaribus mores Romanorum fuerint, secundum Taciti dialogum explicetur.

(In the winter half.)—(1) Rectene Tacitus statuat Tiberium egregium vita famaque fuisse, dum privatus vel cum imperiis sub Augusto esset? (2) Quatuor ætates belli Punici secundi distinguantur. (3) Rectene Cicero propter orationem de Cn. Pompeii imperio habitam levitatis et inconstantiæ arguatur? (4) Sallustii narratio de bello Catilinario cum orationibus Ciceronis Catilinariis comparetur. (5) Quid Thucydides de rebus Græcorum antiquissimis doceat? (6) Qua in re Tacitus maximam civis Romani suæ ætatis laudem posuerit. (7) Qualis sit apud Homerum Hercules et qualis non sit? (8) Proprætorum Romanorum provincias administrantium crudelitas et lubido ex Ciceronis Verrinis.

II. *Unter-Prima.* (In the summer half.)—(1) Catilinæ oratio in senatu habita, Sallust. Catil. 31. (2) Quid sit, sine ira et studio scribere, Tacit. Ann. I. 1. (3) Catonis de conjuratorum supplicio sententia cur potior visa sit senatoribus quam Cæsaris, Sall. Cat. 53. (4) Vere Apollinem Pythium prædixisse, Spartam nulla re nisi avaritia perituram, Cic. Off. II. 2, 27. (5) Sallustii judicium, Atheniensium res gestas aliquanto minores fuisse quam fama ferantur, num probari possit, Sall. Cat. 8. (6) Falso Horatium ignaviæ accusari, quod causam reipublicæ levissime deseruerit. (7) Ciceronis illud in Bruto VII. 45, "eloquentiam pacis comitem otiique sociam esse" num recte dictum sit. (8) Herodoti historiam ad epici carminis similitudinem accedere. (9) Ciceronis oratio omnem memoriam discordiarum oblivione sempiterna delendam esse censentis, Philipp. I. 1. (10) Pompeii in rempublicam Romanam merita.

(In the winter half.)—(1) Romani num recte magis bellantes quam pacati propitios deos habuisse dicantur, Liv. III. 19. (2) C. Jul. Cæsar quo consilio et quo eventu bellum Gallicum gesserit. (3) Tusculanarum disputationum libri I. summarium. (4) De Horatio ruris amatore. (5) C. Marii ingenium et mores. (6) Catonis oratio legatos Atheniensium ex urbe removendos esse suadentis. (7) Quæ sit mediocritas ab Horatio Carm II., 10 commendata. (8) Satirae Horatianæ I argumentum. (9) De Cicerone Ciliciæ præside.

II. *Ober-Secunda.* (1) Rectene Cicero (de Harusp. Resp. c. 19) dixit,

omnibus bonis dolendum fuisse, maxima ornamenta, quibus C. Gracchus excelluerit, non ad meliorem mentem voluntatemque fuisse conversa? (2) De Pisistrati tyranni in rempublicam Atticam meritis. (3) De lectionis Georgicorum Vergili utilitate et jucunditate ad amicum epistola. (4) Quam egregie Homerus Ulixi, Phœnicis, Ajacis, Achillis ingenia in orationibus ab iis habitis (Il. IX. 1526–55) expresserit. (5) Quibus de causis M. Porcio Catoni Censorio sapientis cognomen datum est? (6) Solo quæ bona legibus suis Atheniensibus attulit? (7) De deorum Homericorum natura. (8) Penelopæ laudatio.

B. *German Essays.*

I. *Prima.* (In the summer half.)—1. Is the opposition laid down in these words of Goethe's Tasso:

"Es bildet ein Talent sich in der Stille,
Sich ein Character in dem Strom der Welt—"*

to be taken quite absolutely?

2. "Die Menschen fürchtet nur, wer sie nicht kennt,
Und wer sie meidet, wird sie bald verkennen."†

What are the disadvantages which come from avoiding other people's society too much?

3. From the geographical position and the history of Germany explain the readiness her people have shown in admitting foreign influences upon the forms of their social life and upon their literature.

4. Description of the Realm of Fairy, as it appears in Shakspeare's *Midsummer Night's Dream.*

5. Whence arises the pleasure which we feel in seeing and exploring the ruined castles of the age of chivalry?

(In the winter half.)—1. (Subject chosen by the scholar himself.)

2. How do you explain why Latin was at one time the sole language of the learned in Germany, and long continued to be the language preferred by them?

3. Wherein consist the nobleness and defects of Götz von Berlichingen's character and conduct, as Goethe has represented him.

4. Sketch of the character of the father in Goethe's *Hermann und Dorothea.*

5. "Es fehlt der Mensch, und darum hat er Freunde."

Explain these words from what precedes and follows them in Goethe's *Erwin und Elmira.*

6. How comes it that friendships are more quickly and easily formed in youth than in mature manhood?

II *Ober-Secunda* (In the summer half.)—

1. A verse task, the subject and metre to be chosen by the scholar himself.

2. Character of Tellheim in Lessing's *Minna von Barnhelm.*

3. How far is it a consolation in misfortune to have partners in suffering?

(In the winter half.)—1. Who is your favourite poet and why?

2. The *Frauensand* (from the *Deutsche Sagen* of the brothers Grimm) treated in verse.

3. How can past contrarieties and sufferings be agreeable in the retrospect?

III. *Unter Secunda* (In the summer half).—1. What pleasures and enjoyments are afforded by the spring, beyond other seasons of the year?

2. Give in a prose narrative the substance of Schiller's *Diver.*

3. What advantages has life in a large town over life in the country, and at what time of year are these advantages most felt?

(In the winter half.)—1. What pleasures and enjoyments are afforded by the autumn, beyond other seasons of the year?

2. Letter to a friend, describing the new buildings begun and executed at Schulpforta in the course of the past summer.

3. Give in a prose narrative the substance of Schiller's *Gang nach dem Eisenhammer.*

4. What advantages has country life over life in a large town, and at what time of year are these advantages most felt?

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* A talent is formed in retirement; a character in the stream of the world.

† He only is afraid of men who does not know men; and he who avoids them, will soon know them wrong.

Leaving Examinations and Inspection.

Leaving examinations (*Abiturientenprüfungen*) were held at Michaelmas and Easter. At Michaelmas there were nine candidates (the school had this year 190 scholars), and eight of them got the certificate of ripeness. At Easter there were 13 candidates, and all of them got the certificate.

Of the eight who passed at Michaelmas, six went to the university. Two of these went to study theology, three to study law, one to study history and philology. Both the students in theology went to Halle; of the law students, one went to Halle, one to Jena, and one to Berlin. The student in philology went to Berlin. Of the two who did not go to the university, one went to the Dramatic School to learn to be an actor, the other to the School of Architecture to learn to be an architect.

The school was visited in the course of the year by the Minister of Education; by the High President of the province, President of the Provincial School Board; and by the *Schulrath* or councillor of the Provincial School Board delegated to inspect it. Each visit of the *Schulrath* lasted three or four days. The Minister was present at the delivery of their certificates to the Michaelmas *Abiturienten*.

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8. School-course for the Higher *Realgymnasium* or *Gewerbeschule*, of Basle.

A.—*German.*

1*st year* (6 hours a week).—Grammar: study of the different parts of speech. Composition: imitation of different kinds of literature; commercial correspondence. Recitation of pieces in verse; first elements of German prosody. Translation of passages of German into French; lessons on the differences of idiom in the two languages.

2*nd year* (4 hours).—Grammar: explanation of synonyms; learning by heart foreign expressions and the language in use in different parts of the canton. Short essays in literary and commercial composition on given subjects. Reading and recitation; explanation of Schiller's *Wilhelm Tell*; pieces of poetry repeated by heart. Translation from German into French, as in 1st year.

3*rd year* (4 hours).—History of German literature up to 1740; biographical notices of classical authors as far as Klopstock. Literary composition on a given subject. Short extemporary discourses delivered by the students, afterwards analysed by their fellow students and criticised by the teachers. Reading: Schiller's *Wallenstein*; Goethe's *Iphigenie* and *Hermann und Dorothea*.

B.—*French.*

1*st year* (4 hours a week).—Continuation of matters begun in the German course; oral and written translation of certain select exercises to exemplify rules; Berel's grammar. Reading a number of prose pieces; special study of certain familiar expressions; repeating pieces of poetry. Practice in speaking French. Graduated exercises in composition on easy subjects.

2*nd year* (4 hours).—Oral translation from German into French of all the exercises in Berel's grammar. Literary extracts taken from Vinet's Chrestomathy. Explanation of the main rules of French versification. Practice in elocution (with the Strasburg dialogues). Literary composition as in 1st year.

3*rd year* (4 hours).—Course of French literature; cursory view of the origin, formation, and development of the French language; history of French literature down to the end of the 16th century; special study of the great writers of the 17th century. Translation into French of the principal scenes of Schiller's *Wilhelm Tell*. Every fortnight, exercises in literary composition—narratives, descriptions, letters, &c.

C.—*English.*

1*st year* (4 hours a week).—Grammar and exercises as in the first year's French course.

2*nd year* (4 hours).—First year's studies continued, and translation from German into English, and *vice versâ*.

3*rd year* (4 hours).—Second year's studies continued. In all three years of the French and English courses, conversation in English, German, and French between the teachers and their pupils.

D.—*History.*

1*st year* (3 hours a week).—Retrospective view of ancient history and the history of the Middle Age, particularly the period from 1300 to 1618. Process by which the five great powers of Europe were formed.

3*rd year* (3 hours a week).—History of the principal events from 1789 to our own time. Formation of the modern powers, and European coalition after the French Revolution.

E.—*Natural History.*

1*st year* (1 hour a week in summer, 2 hours in winter).—Physical geography as an introduction to natural history; study of the laws of the sea and the atmosphere; courses of rivers, climates, &c.

2*nd year* (2 hours).—Description of the organs of vertebrate animals.

3*rd year* (2 hours).—Physiology of the class of vertebrates.

F.—*Physics.*

1*st year* (2 hours a week in summer, 1 hour in winter).—General properties of bodies, densities and volumes.

2*nd year* (1 hour a week in summer, 2 hours in winter).—Porosity, crystallisation, hardness, elasticity, adhesion, &c.

3*rd year* (1 hour).—Acoustics, optics, magnetism, electricity, and galvanism.

G.—*Chemistry.*

2*nd year* (2 hours a week).—Study of metalloids, properties of oxygen, hydrogen, carbon, &c.

3*rd year* (2 hours a week).—Study of the properties of phosphorus, boron, silex, and the most important metals, with their combinations.

H.—*Mechanics.*

1*st year* (1 hour a week in summer).—Laws of uniform motion, of accelerated motion. The mechanical powers.

2*nd year* (2 hours in summer, 1 hour in winter).—The lever, the balance. Study of the laws of gravity and stability. Explanation of Gudin's theorem.

3*rd year* (2 hours).—The laws of motion proved by geometrical considerations. Motion of bodies on inclined planes; projectiles; motion of the pendulum; proof of the parallelogram and parallelopipedon of forces.

I.—*Mathematics.*

1*st year* (6 hours a week).—Proofs of the four rules for integers and fractions. Formation of powers; properties of proportions; solution of equations; arithmetic applied to commercial questions. Similarity of geometrical figures and measure of areas.

2*nd year* (5 hours).—Plane geometry. Mensuration of plane surfaces (the rectangle, square, and circle); mensuration of solids; the surfaces and volumes of solid bodies; principles of algebra; involution and evolution; logarithms; compound interest, solution of equations of the second degree with one unknown quantity.

3rd year (5 hours).—Algebra continued. Binomial and multinomial theorems; algebraical proof of the properties of proportions; algebraical formulas for questions in life assurance and compound interest; completion of geometry; trigonometrical formulas; course of analytical geometry.

J.—*Drawing.*

1*st year* (4 hours a week).—Linear drawing.
2*nd year* (4 hours).—Ornamental and art drawing.
3*rd year* (4 hours).—Machine drawing.

Fourth Year.

(This is a half-year finishing course, and is attended by those pupils only who are going to the Polytechnicum.)

1. *Algebra* (1 hour a week).—General theory of equations; *regula falsi.*
2. *Geometry* (5 hours).—Formulas of spherical trigonometry; solution of astronomical problems; theorem of Legendre; continuation of analytical geometry.
3. *Differential and integral calculus* (2 hours).—Differentiation of functions; laws of series; method of tangents; *maxima* and *minima;* indeterminate values; integral calculus; simplest formulas.
4. *Mechanics* (2 hours).—Motion of a point in a circle; laws of centrifugal force; spheroidal shape of the earth; principles of statics and dynamics; solids and liquids.
5. *Descriptive Geometry* (2 hours).—Horizontal projection; problems on the straight line and plane; boundaries of surfaces and solids; tracing curves; elements of perspective; laws of rotatory motion.
6. *Physics* (3 hours).—Optics; magnetism; electricity.
7. *Chemistry* (2 hours).—Elements of organic chemistry.
8. *Mineralogy* (2 hours).—Crystallography; metalloids; mineralogical composition of mountains; special study of the mountains of Switzerland.

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9. List of the Courses of Lectures by Professors, *Privatdocenten,* and Readers, in the University of Berlin, during the Winter *Semester* of 1865–66.

I. Faculty of Theology.

Full Professors.

1. Special Dogmatics (6 hours a week).
2. Theology of the New Testament, and Life of Christ (5 hours).
3. God's Kingdom till the Coming of Christ (1 h.).
4. Introduction to the books of the Old Testament (5 h.).
5. Explanation of the Psalms (5 h.).
6. Life of Christ, and Critical History of the Gospels (2 h.).
7. History of the Church to the Reformation (6 h.)
8. Exercises in Catechisation and Preaching (2 h.).
9. The same (2 h.).
10. Practical Theology (5 h.).
11. The Creeds (1 h.).
12. Symbolical Theology, and Introduction to the Criticism of the New Testament (5 h.).

Assistant Professors.

13. The book of Judges (1 h.).
14. The book of Genesis (5 h.).
15. Life and Doctrine of Saint Paul (1 h.).

16. The Epistle to the Romans (5 h.).
17. The Circle of Knowledge and Methodology (2 h.)
18. Church History, part 1 (5 h.).
19. Archæology and Patristic Study (1 h.).
20. Homiletics, theoretical and practical (2 h.).
21. Biblical History (4 h.).
22. Dogmatics (1 h.).
23. The book of Isaiah (6 h.).
24. Introduction to the books of the Old Testament (5 h.).

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25. The book of Genesis (5 h.).
26. Prophetical Inspiration (2 h.).
27. The book of Isaiah (5 h.).
28. History of the Israelitish Worship (2 h.).
29. The book of Isaiah (5 h.).
30. Chaldaic and Syriac Grammar (2 h.).
31. Three of St. Paul's Epistles explained (2 h.).
32. History of Christian Dogmas (5 h.).
33. Symbolical Theology (1 h.).
34. The dogmatical passages in the Old and New Testament explained (5 h.).
35. Church History, part 1 (5 h.).
36. History of Christian Dogmas (5 h.).

II. Faculty of Law.

Full Professors.

1. Psychology of Crimes (1 h.).
2. Natural Law, Philosophy of Law (4 h.).
3. Criminal Law (4 h.).
4. Criminal Procedure (2 h.).
5. Law of Nations (2 h.).
6. Private German Law, Commercial Law (5 h.).
7. Practical Exercises (1 h.).
8. The Pandects (1 h.).
9. Practical Law of the Pandects (6 h.).
10. History of English Law (1 h.).
11. Roman Law of Inheritance (2 h.).
12. Common and Prussian Civil Process (4 h.).
13. German and Prussian Public Law (4 h.).
14. Canon Law (4 h.).
15. Prussian Law (1 h.).
16. Methodology of Law (3 h.).
17. Prussian Civil Law (4 h.).
18. History of the German Empire and German Law (4 h.).
19. History of the Provincial Estates in Germany (3 h.).
20. The fourth book of Gaius explained (2 h.).
21. History of Roman Law (5 h.).
22. Institutes and Antiquities of Roman Law (5 h.).

Assistant Professors.

23. History and actual state of the German Confederation (3 h.).
24. Common Law of Prussia (4 h.).
25. French Civil Law (4 h.).
26. Catholic and Protestant Law of Marriage (1 h.).
27. Prussian Civil Law (4 h.).
28. Catholic and Protestant Canon Law (4 h.).
29. Ecclesiastical and Canon Law (4 h.).
30. Practice of Ecclesiastical and Canon Law (1 h.).
31. Capital Punishment (1 h.).

32. Common and Prussian Criminal Law (4 h.).
33. French Criminal Procedure (2 h.).
34. German Public Law, Rights of Sovereigns (2 h.).
35. Law of Nations (3 h.).
36. Practical Exercises on the Criminal Law (1 h.).

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37. Prussian Law (1 h.).
38. History of Roman Law (1 h.).
39. Institutes and Antiquities of Roman Law (4 h.).
40. Prussian Civil Law (4 h.).
41. Feudal Law (1 h.).
42. Private German Law (4 h.).
43. Commercial Law, Maritime Law, and Law of Exchange (4 h.).
44. History of Roman Law in Germany (1 h.).
45. History of the Empire, and of German Law (4 h.).
46. Prussian Law of Succession (1 h.).
47. Practical Exercises on the Jurisprudence of the Pandects (1 h.).
48. Institutes and Antiquities of Roman Law (5 h.).
49. Relations between Church and State (1 h.).
50. Ecclesiastical and Marriage Law (4 h.).
51. German Public Law, Private Rights of Sovereigns (2 h.).
52. Prussian Public Law (3 h.).
53. Practical Exercises on Public and Canon Law (1 h.).
54. Private Justice among the Romans (2 h.).
55. Roman Law of Succession (3 h.).
56. Modern Law of Exchange in Germany (1 h.).
57. Private Law and Feudal Law in Germany (4 h.).
58. Commercial and Maritime Law in Germany (4 h.).
59. The *Speculum Saxonicum* explained (2 h.).
60. History of the Empire, and of German Law (4 h.).
61. Interpretation of the Solutions in the Digests (1 h.).
62. Methodology of Law (3 h.).

III. Faculty of Medicine.

Full Professors.

1. On certain Discoveries of the Naturalists (1 h.).
2. Experimental Physiology (5 h.).
3. Practical Exercises in Experimental Physiology (1 h.).
4. Comparative Physiology, with the Microscope (1 h.).
5. General History of Medicine (1 h.).
6. Pathology and Therapeutics (3 h.).
7. Clinical Medicine (6 h.).
8. Diseases of the Nervous System (5 h.).*
9. Medical Practice (6 h.).
10. History of Popular Maladies (1 h.).
11. General History of Medicine (3 h.).
12. Pathology and Therapeutics (5 h.).
13. Hernia (2 h.).
14. General and Special Surgery (4 h.).
15. Clinical Surgery, and Clinical Ophthalmics, Clinical Surgery (5 h.).*
16. Experiments in Surgery and Anatomy.
17. Clinical Surgery, and Clinical Ophthalmics (6 h.).*
18. Midwifery (4 h.).
19. Clinical Midwifery (6 h.).*
20. Practical Exercises in Midwifery (1 h.).
21. Excitant Drugs in Medicine (2 h.).
22. *Materia Medica* (6 h.).

* Delivered either at one of the hospitals or at one of the medical institutions of Berlin.

23. Osteology (1 h.).
24. Anatomy of the Brain and Spinal Marrow (1 h.).
25. General Anatomy (6 h.).
26. Structure of the Human Body, with the Microscope (1 h.).
27. Practical Exercises in Anatomy (24 h.).
28. Methodology of Medicine (2 h.).
29. General Pathology and Therapeutics, and their History (4 h.).
30. *Materia Medica*, with Experiments (6 h.).
31. Pathological Anatomy (4 h.).
32. Practical Course of Anatomy and Pathology, with the Microscope (6 h.).
33. Practical Course of Pathological Osteology (6 h.).

Assistant Professors.

34. Spectacles (1 h.).
35. Ophthalmology (2 h.).
36. The same (2 h.)
37. Clinical Ophthalmics (6 h.).
38. Practical Course of Ophthalmics, with Experiments (1 h.).
39. General Surgery (6 h.).
40. Surgical Operations on Dead Bodies (1 h.).
41. Diseases of Children (6 h.).
42. Errors of Modern Medicine (1 h.).
43. Hygiene (1 h.)
44. Theory and Practice of Treatment of Diseases of the Eye (4 h.).
45. Anatomy of the Organs of Sense (1 h.).
46. Osteology and Syndesmology of the Human Body (3 h.).
47. Public Hygiene (1 h.).
48. Legal Medicine (3 h.).
49. Medico-legal Dissection (6 h.).
50. The Nerves (2 h.).
51. Clinical Study of Diseases of the Nerves (6 h.).
52. Toxicology (2 h.).
53. Legal Medicine (3 h.).
54. Medico-legal Dissection (6 h.).
55. Pathology and Therapeutics (1 h.).
56. Auscultation (4 h.).
57. Clinical Lectures on Ausculation and Percussion (6 h.).*
58. Wounds (1 h.).
59. Fractures and Dislocations (2 h.).
60. Application of Bandages (3 h.).

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61. Diseases of the Teeth and Mouth (2 h.).
62. Diseases of the Teeth and their Cure, with Experiments (6 h.).
63. Surgical and Ophthalmological Experiments.
64. Drawing up of Prescriptions (2 h.).
65. Special Pathology and Therapeutics (6 h.).
66. Venereal Diseases (2 h.).
67. Cutaneous Diseases (2 h.).
68. Clinical Lectures on Diseases of Children (2 h.).
69. Diseases of the Ear (1 h.).
70. Moral Responsibility (1 h.).
71. Pathology of Venereal Diseases (1 h.).
72. Surgery (6 h.).
73. Legal Medicine (2 h.).
74. Diseases of Women (2 h.).
75. Theory and Practice of Midwifery (4 h.).
76. Baths and Thermal Waters (2 h.).
77. Drawing up of Prescriptions (3 h.).

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* Delivered either at one of the hospitals or at one of the medical institutions of Berlin.

78. Physiological Effects of Gases (3 h.).
79. Toxicology (3 h.).
80. Going over previous lectures in Physiology and Osteology (1 h.).
81. Theory and Practice of Midwifery (4 h.).
82. Operations in Midwifery (1 h.).
83. Clinical Study of Cutaneous and Venereal Diseases (3 h.).
84. Use of the Laryngoscope (1 h.).
85. Diseases of the Heart (1 h.).
86. Percussion, Auscultation, &c. (3 h.).
87. Auscultation, Percussion, and use of the Laryngoscope (4 h.).
88. General and Special Surgery.
89. Physiology of Animal Generation (1 h.).
90. Physiology of the Nerves and Muscles (4 h.).
91. Hernia (1 h.).
92. Puncture with Experiments (1 h.).
93. Hereditary vices (1 h.).
94. General and Special Surgery (4 h.).
95. Auscultation, Percussion, &c. (1 h.).
96. Diagnostics (2 h.).
97. Use of Electricity in Medicine (1 h.).
98. Experimental Physiology (2 h.).
99. Going over previous lectures on different points of Physiology (1 h.).
100. Ophthalmology (3 h.).
101. Use of the Ophthalmoscope (1 h.).
102. Diagnostics of abnormal states of the Eye (1 h.).
103. Theory and Practice of Midwifery (4 h.).
104. Operations in Midwifery (1 h.).
105. Thermal Waters (2 h.).
106. Going over previous lectures on Pharmacology (1 h.).
107. Position of the *Viscera* in the Human Body (1 h.).
108. The Laryngoscope (1 h.).
109. The Laryngoscope, Auscultation, Inhalations, &c. (1 h.).
110. Cure of Insanity; the Diseases of the Brain (2 h.).

IV. Faculty of Philosophy.

Full Professors.

1. Æschines *in Ctesiphontem* (2 h.).
2. Palæontology (5 h.).
3. Greek Antiquities (6 h.).
4. Botany (1 h.).
5. Special Botany (4 h.).
6. *Cryptogama*, &c. (1 h.).
7. Meteorology (1 h.).
8. Experimental Physics (4 h.).
9. Grecian History (4 h.).
10. Modern History, from 1780 to 1815 (5 h.).
11. Archæology (2 h.).
12. Greek Mythology (1 h.).
13. National Economy (4 h.).
14. Science of Finance (4 h.).
15. The *Persæ* of Æschylus (4 h.).
16. The *Miles Gloriosus* of Plautus (4 h.).
17. Politics and Political Economy (1 h.).
18. Principles of Political Economy (4 h.).
19. Logic and Metaphysics (4 h.).
20. Political Economy; Theory of Finance (4 h.).
21. Organic Chemistry (1 h.).
22. Experimental Chemistry (3 h.).
23. The Speeches of Lysias (2 h.).
24. The Homeric Poems, and particularly the *Odyssey* (4 h).
25. Surfaces of the Fourth Order (1 h.).

26. Analytical Mechanics (4 h.).
27. History of Egypt (1 h.).
28. Grammar of Hieroglyphics (3 h.).
29. Explanation of Egyptian Monuments (1 h.).
30. Physical Experiments (1 h.).
31. The 41st book of Livy, and onwards (1 h.).
32. Latin Inscriptions (4 h.).
33. Monuments of the Ancient German Language explained (1 h.).
34. History of the Ancient Poetry of Germany (4 h.).
35. The *Germany* of Tacitus (4 h.).
36. Analysis of Determinate Numbers (3 h.).
37. General and Special Zoology (6 h.).
38. Zootomy (4 h.).
39. Historical Exercises (1 h.).
40. Modern History of England and of her Parliament (4 h.).
41. History of Politics (1 h.).
42. The Syriac Language (1 h.).
43. Grammar of the Semitic Languages (1 h.).
44. Explanation of the Psalms (5 h.).
45. Principles of Arabic Grammar (3 h.).
46. Comparison of Persian with Sanscrit (1 h.).
47. Crystallography (1 h.).
48. Mineralogy (6 h.).
49. The sixth book of Aristotle's *Nicomach. Eth.* (2 h.).
50. Psychology (4 h.).
51. History of Philosophy (5 h.).
52. Theory of Analytical Functions (6 h.).
53. Algebraical Equations (6 h.).

Assistant Professors.

54. History of Modern Philosophy (2 h.).
55. Logic (4 h.).
56. General History of Philosophy in 17th century (4 h.)
57. Theory of Determinants (2 h.).
58. Algebra (4 h.).
59. Differential Calculus (4 h.).
60. Physical Geography, and History of the Mediterranean (3 h.).
61. Simple Drugs examined with the Microscope (1 h.).
62. Botany of Medical Plants (6 h.).
63. Pharmacognosy (4 h.).
64. Certain Arabic Authors explained (1 h.).
65. Arabic Grammar (3 h.).
66. The book of Genesis (5 h.).
67. Theory of Geographical Phenomena (3 h.).
68. Analytical Mechanics (1 h.).
69. History of Astronomy (2 h.).
70. Theory of the Motion of Planets and Comets (4 h.).
71. Exercises in Archæology (1 h.).
72. History of Greek Sculpture (3 h.).
73. National Economy (4 h.).
74. The *Epidicus* of Plautus (2 h.).
75. Roman Antiquities (4 h.).
76. History of Greek Philosophy (2 h.).
77. Æsthetics (2 h.).
78. Select Epistles of Cicero (1 h.).
79. Philological Exercises (1 h.).
80. Greek Mythology (3 h.).
81. Exercises in Palæography (1 h.).
82. Latin Palæography (1 h.).
83. Natural History of Glumaceous Plants (1 h.).
84. Systems of Medical Plants (6 h.).
85. Exercises in Anatomy and Physiology (4 h.).

86. Ancient Geography (3 h.).
87. Botany, Diseases of Plants (4 h.).
88. Agronomical Science (1 h.).
89. Historical Exercises (1 h.).
90. History of Germany (4 h.)
91. Art of Singing, especially Church Singing (2 h.).
92. Musical Composition (4 h.).
93. Pædagogy (2 h.)
94. The *Nibelungen* (6 h.).
95. Exercises in deciphering Manuscripts (1 h.).
96. Logic; Encyclopædia of Philosophical Sciences (4 h.).
97. History of Philosophy (4 h.).
98. History of the New World (2 h.).
99. Geography and Ethnography of Europe (4 h.).
100. The Chaldee Language (1 h.).
101. History of the Armenians (3 h.)
102. General History of Physics since Galileo (2 h.).
103. Theory of Electricity (1 h.).
104. Physics applied to Mathematics, Acoustics (4 h.).
105. Chemical Metallurgy (3 h.).
106. Principles of Qualitative and Quantitative Analysis (1 h.).
107. Experimental Chemistry (6 h.).
108. Pharmacy (3 h.).
109. Chemical Experiments (8 h. *daily*).
110. The Turkish Language (3 h.).
111. Principles of National Psychology (1 h,).
112. Philosophy of Language; General Grammar (4 h.).
113. Character of the Indo-Germanic Languages (4 h.).
114. Universal History of the Arts (5 h.).
115. The *Sacontala* of Calidâsa (2 h.).
116. Sanscrit Grammar (3 h.).
117. Zend or Pâli Grammar (2 h.).
118. The Rigveda or the Atharvaveda explained (1 h.).
119. Course of Sanscrit, Zend, or Pâli (1 h.).
120. The Dramatic Art (1 h.).
121. Psychology and Anthropology (3 h.)

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122. Experimental Organic Chemistry (4 h.).
123. Experiments in Organic Chemistry (6 h.).
124. Schleiermacher (1 h.).
125. Logic, and Encyclopædia of the Philosophical Sciences (4 h.).
126. The limits between Poetry and Philosophy (1 h.).
127. The American Political Economist, Henry Carey.
128. Logic and Metaphysics.
129. Political Economy.
130. History of Modern Civilization.
131. Agronomical Zoology (3 h.).*
132. Entomology (3 h.).
133. The Koran (2 h.).
134. The Semitic Dialects (1 h.).
135. Differential Calculus (4 h.).
136. Analytical Geometry (4 h.).
137. The Bhagvatgita (1 h.).
138. Panini's Sanscrit Grammar (3 h.).
139. Hindustani or Pâli Grammar (2 h.)
140. Indian Philosophy (1 h.).
141. The Satires of Juvenal (2 h.).
142. Syntax of the Latin Language (4 h.).
143. Lucretius *De Rerum Natura* (1 h.).

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* This course treats of the animals which do harm to agriculture.

144. Rhetoric and Rhetorical Exercises (2 h.).
145. Aristotle, and the Natural Philosophy of the Ancients (4 h.).
146. History of the German Universities (1 h.).
147. Systems of Modern Philosophy since Kant (4 h.).
148. Experimental Chemistry (6 h.).
149. The Olynthiac Orations of Demosthenes (1 h.).
150. The Epistles of Horace (4 h.).
151. Physics applied to Mathematics, Acoustics, Optics, &c. (3 h.).
152. General Geology.
153. Natural History of *Entozoa* (1 h.).
154. General Zoology.
155. The Climate of Italy (1 h.).
156. Medical Climatology (2 h.).
157. Conversational Lecture on Chemistry (1 h.).
158. History of Chemistry (1 h.).
159. Qualitative and Quantitative part of Analytical Chemistry (3 h.).
160. Medico-legal Chemistry (3 h.).
161. Chemical Experiments (8 h. *daily*).
162. Theory of Irrigation and Drainage (1 h.).
163. Principles of Agriculture (3 h.).
164. Management of Cattle (3 h.).
165. Book-keeping (1 h.).

Readers (for Modern Languages).

166. Lectures in Italian on Italian Literature (2 h.).
167. Italian Grammar (2 h.).
168. Lectures on the Italian and French Languages (2 h.).
169. German Shorthand (2 h.).
170. German, English, French, and Italian Shorthand (2 h.).
171. Lectures in Polish on Persian Grammar and the Zend Language (2 h.).
172. The Turkish Language; *Kirk Vezir* read (3 h.).
173. Practical Lectures on the Persian and Turkish Languages (2 h.).
174. Lectures in English on English Literature down to the 16th century (1 h.).
175. Lectures on the English Language (2 h.).

COMMUNICATION

ON THE

CONDITION OF SECONDARY EDUCATION IN THE NETHERLANDS.

BY

BARON DONALD MACKAY.

ARTICLE 194 of the constitution of Holland contains these stipulations :—

"Public education is a matter which requires the constant "attention of Government.

"Rules for the organization of public education are made by "law with a due regard to everybody's religious principles. The "Government is bound to provide everywhere primary public "education.

"Everybody is free to teach under the control of Govern- "ment, and Government certificates are required of a master's "scientific acquirements and character, so far as primary and "middle education are concerned ; this must be settled by law.

"Annually the king orders that a detailed report should be "made to the States General on the condition of high, middle, "and primary schools."

There is no compulsory education in Holland. Private schools are liable to inspection by the Government authorities, and middle and primary private schools must have certificated teachers.

For primary education a law was passed in 1857, for middle education in 1863. The character of the first law was rather to reform that which was existing, of the second to start a new scheme of education. These laws are governed by the principle that primary education is the first beginning of intellectual development for all classes alike ; whereas higher education is only intended for a select number, for those who want a learned education, either as a means, or as an end, and especially for those who require instruction of a classical nature. Between these two classes is the large number of those who, having gone through

primary education, desire to fit themselves for practical life in commercial or other industrial pursuits; and middle education is concerned with a kind of knowledge which, while it is likely to be useful in those capacities, is not reached in lower, and is only a part of higher education.

The separation between the three kinds of education consists not so much in the different branches of knowledge which they embrace as in the different object which each kind of education has in view; and it is the object which determines both the nature and the method of the education.

In general the object of middle education is to develope the faculty of observation, of acquiring knowledge and thought. And as the use and application of natural powers and the peculiar qualities of the products of nature constitute the chief subjects of knowledge which are required by the middle classes, mathematics and natural science will of course (as will be seen presently) form the staple of this education, with such other branches of knowledge as are necessary to everyone who desires to reach that degree of moral and material independence, which at this day is considered appropriate to the condition of the higher industrial classes.

This scheme of education differs from what is called in neighbouring countries a professional education. By the Netherlands Government middle-class education is regarded as a general preparation for different careers, to which formerly less attention was paid, but which have now become more prominent through the advance of commerce and industry under the beneficent system of free trade, which is carried out with as much consistency and confidence in the Netherlands as in Great Britain.

The object of the Government was not to turn the schools into workshops, but to give to the mind such a turn as to make it fit for practical life generally. The law of 1863 on middle education creates different kinds of schools.

I. The first class is designed to supply the wants of those who have to exist by means of some handicraft trade, and who, after having been at a primary school, can only spare a little of their time for the second stage of education. The period of attendance at primary schools usually terminates with the 12th year, after which age the very poor seldom receive any further schooling. Others however, educated at schools where the cost to the parents is three or four florins (5*s.* or 7*s.*), would at the end of the course probably attend a middle school of this kind, where they remain two years. In these schools, called middle-class schools (burgerscholen), the instruction in Netherlands grammar, history, geography, and gymnastics, which has been commenced in the primary school, is advanced; and to these are added the elements of social science, drawing, and also mathematics, the elements of natural and mechanical science and of machinery, chemistry,

natural history, and technology; a modern language may be added by the parish authorities.

Every parish (commune) selects its own representatives, who form a council presided over by a mayor appointed by the king. Those who pay a trifling amount of direct taxes are electors. The council selects an executive committee from its own members, also presided over by the mayor. Such are the parish authorities.

A two years' curriculum is considered sufficient for these schools; they are attended by artisans and agriculturists.

Partial alterations, such as the substitution of some elementary instruction in agriculture for technology, may be made according to the wants of the parish in which the school is situated. In addition to the regular schools, there are classes established by the parish council for those who, on account of their occupations, cannot attend the day school. One or more of these schools must be established in communes of more than 10,000 inhabitants (of which the number is about 40), unless a dispensation is obtained from the king; and this is given only when either the population is so scattered that it is not probable that a regular attendance can be obtained; or when a public or a private school is already in existence which satisfies the educational wants in this respect. Moreover, if it is considered that an evening school will satisfy the requirements of the parish, the king can in the same way dispense, for a limited number of years, with the obligation of establishing a morning school, and in this case the evening school has a two years' curriculum, and the subjects of instruction are indicated by the king. This dispensation was granted to all agricultural communes. The sum to be paid annually at these public schools is not to exceed 12 florins (about 1*l.*) for each pupil.* The director, who takes charge of the discipline of the school, and the masters of these schools are appointed by the parish council.

The law allows the parishes six years to prepare this organization. Some evening schools are established, and almost exclusively attended by the working classes; gratuitous education is given in some cases; in most cases the fee varies from 2 to 5 florins (3*s.* to 8*s.*) annually. The Hague, Utrecht, and Groningen have a day school and an evening school.

II. Another class of schools has for its object the instruction of young men, who have larger means at their disposal, and who desire to acquire a deeper and wider knowledge than is generally sought by artisans and small agriculturists. As in Prussia and other German countries, these schools are called higher middle-class schools, or higher industrial schools (hoogere burgerscholen). Pupils of the schools giving more extensive primary education

* It will of course vary according as the pupil attends only the morning school or only the evening school, or both.

would be fit to proceed to these middle schools, which have no connexion with those above mentioned.

The law subdivides these schools into two classes. For a great number of pupils a curriculum of three years is sufficient; for others a curriculum of five years is wanted, in which case the school is final, unless the pupils proceed to the polytechnic school. Pupils leave these schools generally about the age of 18. No article of the law prohibits pupils from being admitted gratis to the school, but as a rule this is not done.

The law obliges the Government to establish at least 15 of these higher schools, of which at least five must be fitted to undertake the five years' course. They are established in those provinces where the results are likely to be the most promising, and where it is not probable the parish itself will provide for the wants of the place. The law does not indeed *oblige* any parish to establish a higher industrial school; but the Government, convinced of the great use of these schools, and not being themselves able to originate more than the 15 just mentioned, offers grants to the parishes which may start any of those schools at their own expense. The cost of a government school of this kind, with a five years' course, may be estimated at a minimum of 25,000 florins (more than 2,080*l.*) annually. The cost of those with a three years' course only is about 12,000 florins (1,000*l.*). But from this amount must be deducted the fees of the pupils, which in Government schools of this kind cannot be more than 60 florins (5*l.*) annually for each pupil. At the schools with a five years' course the number of the masters, of which one is the director, varies from 10 to 12; their salaries average about 20,000 florins, or 1,666*l.*, and the other perquisites of the school, 5,000 florins, or 416*l.*, from which can be deducted the contributions of 100 scholars, about 5,000 florins, or 416*l.*, and the government grant, if it has been obtained.

The lessons of the three first years of the schools with a five years' course are very nearly the same as the lessons of those which have only a three years' course. At these last the subjects taught are

a. Mathematics.
b. First principles of physics and chemistry.
c. Principles of botany and zoology.
d. Principles of political economy.
e. Principles of book-keeping.
f. Geography.
g. History.
h. Dutch.
i. French.
k. English.
l. German.
m. Handwriting.
n. Drawing.
o. Gymnastics.

At the schools with a five years' course are taught

a. Mathematics.
b. Principles of theoretical and applied mechanics, of machinery, and of technology.
c. Natural science and its principal applications.
d. Chemistry and its principal applications.
e. Principles of mineralogy, geology, botany and zoology.
f. Principles of cosmography.
g. Principles of the organization of parishes, counties, and government generally, in the Netherlands.
h. Political economy, and statistics, especially of the Netherlands and of its colonies and possessions in other parts of the world.
i. Geography.
k. History.
l. Dutch grammar and literature.
m. Idem French.
n. Idem English.
o. Idem German.
p. Principles of commercial science and book-keeping.
q. Handwriting.
r. Drawing.
s. Gymnastics.

At the government schools of this class the appointment of the masters and directors is vested in the king.

The attendance at these schools is of boys of the highest and the various ranks of the middle class: and no difficulty is experienced in mixing the two classes. In some of these schools attendance at all lectures is obligatory, in others attendance at some lectures is optional, according to the rules made by the authorities who have the control of the school. In the government schools the principle of allowing separate attendance is general. There are no boarders at these schools, but directors and masters not unfrequently board pupils at a cost varying from 400 florins (34*l.*) to 1,000 florins (84*l.*).

III. A third class of schools is formed by the polytechnic school, which was established by the government in July 1864, at the same time that the Royal Academy of Engineers, founded in 1842, was suppressed. This school must answer several purposes; it is intended for the great manufacturers who have to compete with foreign markets, as well as for all kinds of engineers, architects, &c. It is needless to enumerate all the different branches of science which are taught, and which realize as much as possible the highest demands which in any country could be made on a final institution of this kind. It has 19 professors: five for mathematics, analytical mechanics and linear drawing, one of whom is director of the school; three for applied mechanics, construction of machinery and mechanical technology;

two for construction of hydraulic works; four for architecture and ornamental drawing; two for chemistry and chemical technology; one for geology, mineralogy, and construction of mines; one for applied physics; and one for political economy and knowledge of the laws relating to public works and industry.

The contribution of each pupil is fixed at the rate of 200 florins (17*l.*) annually. The annual expenses of the school will probably amount to 100,000 florins (8,300*l.*) from which sum, however, the fees paid by the scholars are to be deducted.

IV. Another class is formed by Agricultural Schools, for the establishment of which the State is responsible in case private enterprise shall fail to provide for the wants of those who desire to acquire a thoroughly scientific knowledge of agriculture. A private school, aided by a public grant, which existed before the Act of 1863 was passed, may probably be held to exempt the Government from this obligation.

Once a year examining committees are appointed by the Home Secretary for issuing certificates, without which nobody is entitled to teach at middle schools either public or private. These certificates, are, 1st, one of the 2nd degree for mathematics and physics; 2nd, one of the first degree for mathematics and mechanics; 3rd, one of the first degree for physics; 4th, one of the first degree for chemistry; 5th, one for agriculture (the four latter cannot be obtained without possessing the first); 6th, one for Netherlands literature, history, and geography; 7th, one for economical and social science; 8th, one for commercial science; 9th, one for modern languages; 10th, one for linear and imitation drawing. They are never revised.

Those who have the degree of Doctor in mathematics or natural and physical science at one of the Netherlands universities, need not obtain the 1st and 3rd certificates. Doctors of Civil Law are entitled to teach political and social science without further certificate; the literary Doctors history, geography, and Netherlands literature.

Annually, at the end of the term, scholars of the middle schools, and indeed any person can obtain certificates; in the polytechnic school after examination by committees appointed by the Home Secretary; in the higher middle-class schools after examination by committees appointed by the Chief Magistrate (Préfet) of the county; and in the inferior middle-class schools after examination by committees composed of the masters and a member of the local board of control as chairman.

The examinations which are not competitive, are conducted as a rule both in writing, and *vivâ voce*. The examiners are bound to send in their report to the civil authorities. In the province of South Holland, in 1866, the examiners named the following subjects for an historical essay in Dutch, from which the candi-

dates, who had gone through the course of a higher middle school, or anybody else, were to make a selection :—

1. The internal administration of Charlemagne.
2. The influence of the crusades on the "tiers état."
3. Gregory VII.
4. The period of 1587 and 1588 in the religious war.
5. Cromwell.
6. Causes of the English revolution.
7. Ferdinand and Isabella.
8. The reformation in Sweden ; Gustavus Wasa.
9. Rise of the supremacy of England in India.
10. The war of independence in the United States of North America.
11. History of the "Assemblée Constituante" in France (1789–1791).

The subjects for an essay in English were :—

1. Death of Charles I., with a short account of the political state of England at that period.
2. Death of the brothers De Witt.
3. Napoleon's return from Elba, with the battle of Waterloo and its consequences.
4. Life of De Ruyter.
5. King Louis Napoleon.
6. The revolution of 1688 in England.
7. The Russian campaign of 1812.
8. Macbeth.

On the certificate which is given to those who pass the examination, mention is made of the degree of proficiency of the candidate in each particular branch. The examiners in the province of South Holland, in 1866, adopted various standards. The result was said either to be *bad*, *not satisfactory*, *satisfactory*, *good*, *very good*, or *perfect*. Besides these examinations, there are also examinations before promotion from one class to another.

The law does not exclude gratuitous education, and for the government schools the Home Secretary decides whether scholars will be admitted on such terms. The rule has not been uniform, and depends entirely on the views of the Cabinet minister for the time being. There are no exhibitions or bursaries to help students, neither are there any permanent endowments.

The law gives the inspection of public and private industrial schools to local committees appointed by the parish council, and to inspectors (of whom one is for agricultural schools in particular,) under the control of the Home Secretary, and appointed by the Sovereign.

At the present moment there are three inspectors who have each a part of the country as their district, and who are all university men of considerable standing. The local committees are obliged to visit each middle-class school twice a year, with the exception of the polytechnic and the government agricultural schools. These parish committees are composed of men belonging

to all classes of society, lawyers, physicians, chemists, and manufacturers. The inspection is unlimited, and works admirably.

Whether a private school should be considered as a middle school is decided by the nature of the education, or by the age of the pupils, or by the object the school has in view; for instance, to prepare pupils for the Military Academy or the Naval College.

In the case of *voluntary* parish middle schools, the parish authorities are entirely at liberty to make any rules they like, and to appoint any masters who have the certificates required by law; but if a government grant is given, their liberty is curtailed, and government interference on any matter becomes legitimate. These appointments by parish authorities are very satisfactory. The special parish committees are either administrative or controlling, according to the rules made by the parish council; in the latter case the standing committee of the parish council manages the schools.

All the provisions of the law are not yet carried out; but when they are, it is supposed that the grants will amount to 150,000 florins (less than 13,000*l.*); the expense of the 15 government schools 300,000 florins (more than 25,000*l.*); and a revenue of fees of about 50,000 florins (more than 4,000*l.*) from those schools.

There are some private boarding schools, where pupils are chiefly trained to pass their examinations for the Military Academy and the Naval College. This examination is competitive. The higher middle schools, established by Government and parish authorities, are not instituted for this special purpose, but the course of studies is very similar, though its extent is greater.

In a great many parishes, before the Act of 1863 was passed, there were drawing schools, industrial schools, or drawing and industrial schools. Many of these schools will either disappear or undergo considerable alteration now that the Government has taken up the matter.

The rule of the Government is only to give grants to schools where theoretical instruction is given; schools which give practical industrial education to artisans or workmen do not come within the scope of Government inspection or assistance.

In Amsterdam there are two schools of the "Society for the Working Classes," one attended by 122, the other by 98 pupils. At the first practical industrial education is given, besides a repetition of things taught in the primary schools, mathematics, and drawing. Physics and mechanics do not appear to be taught very well, but the drawing lessons are very satisfactory. The theoretical education suffers from the amount of time which is given to the practical part.

The other school is on a higher level; it is an evening school, where drawing, knowledge of materials, construction, mathematics, physics, and mechanics are taught. Of the six masters at this school four teach drawing.

The society for the improvement of the masses diffuses education, and educates in Amsterdam 200 pupils in drawing, writing, arithmetic, and the principles of physics and mechanics. The same society has started an industrial school for young females, to enable those of the middle classes to earn their livelihood, if they are compelled to it, and to educate daughters of artisans in drawing, colouring, the use of the sewing machine, needlework, and embroidery, straw-plaiting, book-keeping, and some repetition of what has been taught in the primary school. There are seven teachers for 25 pupils. This school, however, will be made more efficient, and its organization altered; a Government and a parish grant will most likely be given to it.

The private agricultural school at Groningen is undergoing reform; it has a grant of 6,000 florins (500*l.*) from Government, and of 6,000 florins (500*l.*) from the provincial authorities. The curriculum will be of three years. The subjects taught will be:—

	Weekly Number of Hours.		
	1st Term.	2nd Term.	3rd Term.
Political economy	2	1	–
Mathematics	4	2	–
Applied mathematics	–	–	2
Mechanics	–	2	–
Organization of buildings	–	–	2
Drawing	2	2	–
Physics	4	2	–
Chemistry	4	2	4
Meteorology	–	1	1
Agricultural technology	–	2	2
Mineralogy and geology	2	2	–
Botany	6	2	2
Zoology	2	2	–
Animal anatomy	–	2	1
Science, and the medical treatment of domestic animals.	–	–	4
General and particular agriculture	2	4	6
Management of cattle	–	2	4
Agricultural book-keeping	–	2	2
	28	30	30

At Leiden there is a Government institution to promote the knowledge of Netherlands India, where the civil servants of the Crown and others can be educated either by attending the whole course of lectures or merely part of them. The curriculum is distributed over two years; it embraces the Japanese and Malay languages, the ethnology of Netherlands India generally, and of Java and the other islands of the Archipelago in particular, the history of Netherlands India, the public law and system of administration in Netherlands India, the Mohammedan laws, the religious laws, popular institutions and customs in Netherlands India: A. The institutions of Islam; B. Javanese laws.

The commune of Delft keeps up an institution of the same kind, which has no Government grant; it has a curriculum of four years, and another of two years, and its object is to educate the future civil servants of the Crown in India and others.

About the operation of this new organization it is not yet possible to have any definite opinion; but, judging from the way in which it has been received throughout the country, especially in the great towns, the Government have found a readiness to carry out its views which must have surpassed the most sanguine expectations. In all the great centres of population schools have either been opened or are being started. The parish authorities and representatives are willing to grant liberal supplies to meet the requirements of this essential element of general progress; and to elevate and enlighten the most influential classes of the people, on whose intellectual development chiefly depends the steady increase of public wealth. "Men not measures" is admitted by all who are interested in this great work to be the first and vital condition of success; the appointment of teachers of high standing has been the first aim in the establishment of these schools, and it has been rewarded in nearly every case by the attendance of a considerable number of pupils, who have taken to their work with pleasure, while the breaches of discipline are very rare. The great variety of subjects taught is sometimes objected to; but if they are brought into their proper connexion by able teachers, their extent and diversity will appear less formidable. If the director takes care that unity shall be preserved in the teaching of those branches which have a close relation, as, for instance, in modern languages, and makes the different teachers act in concert, the pupils will find many of their difficulties overcome.

In the Roman Catholic parts of the country, and by some distinguished Protestants, objections have been made against the "secularism" of the Act, but they were not strong enough to hinder its successful working; and it ought not to be forgotten that the Act does not discourage private efforts whenever a sufficient object and adequate means are proved to exist.

Grants are never given by government except to institutions accessible to all denominations.

The school buildings are generally very good. The inspector has power to disapprove them.

In conclusion, it may not be superfluous to give some statistics of the higher middle schools now existing.

Provinces.	Communes.	Nature of the School.	Length of the Course.	Number of Masters.	Number of Pupils attending all Lectures in the					Total of Pupils.	Total of Pupils attending part of the Lectures.
					Preparatory Class.	1st Class.	2nd Class.	3rd Class.	4th Class.	5th Class.	
North Brabant	Tilburg	Government school	5 years	10	—	31	—	—	—	—	31	5
	Helmond	Idem	3 „	6	—	28	—	—	—	—	28	2
Gelderland	Arnhem	Parish school with Government grant.	5 „	13	—	37	21	13	2	—	73	4
	Zutphen	Idem	5 „	11	—	14	10	12	7	6	49	15
	Nymegen	Idem	3 „	11	—	15	14	5	—	—	34	1
South Holland	The Hague	Parish school	5 „	13	—	31	36	15	13	10	105	—
	Rotterdam	Parish school with Government grant.	5 „	14	—	20	31	27	6	5	89	—
	Leiden	Idem	5 „	14	—	21	20	8	6	1	56	35
	Dordrecht	Idem	5 „	11	—	24	16	7	4	1	52	7
	Delft	Idem	5 „	13	—	24	27	28	27	10	116	9
	Gouda	Government school	3 „	8	—	23	7	5	—	—	35	3
North Holland	Amsterdam	Parish school	5 „	15	—	33	33	24	13	6	109	—
	Haarlem	Parish school with Government grant.	5 „	11	—	42	30	29	7	9	117	15
	Zaandam	Idem	4 „	7	—	27	21	—	—	—	48	15
Zeeland	Middelburg	Government school	5 „	12	—	19	23	17	5	2	66	17
	Goes	Parish school with Government grant.	6 „	8	18	13	6	4	—	—	41	6
Utrecht	Utrecht	Government school	5 „	13	—	26	9	10	17	1	63	11
Friesland	Sneek	Parish school with Government grant.	5 „	9	—	22	31	23	7	3	86	15
	Harlingen	Idem	4 „	7	—	11	8	12	3	—	34	14
Overyssel	Deventer	Idem	6 „	13	—	12	9	8	9	3	41	35
	Enschede	Private school with grants	5 „	8	—	6	10	15	—	5	36	6
Groningen	Groningen	Government school	5 „	12	—	44	27	22	10	5	108	8
	Veendam	Parish school with Government grant.	5 „	6	32	27	—	—	—	—	59	15
Drenthe												
Limburg	Maastricht	Parish school with Government grant.	5 „	12	—	42	28	20	16	6	112	7
	Roermond	Government school	5 „	13	—	30	16	16	4	5	71	12
	Venlo	Parish school with Government grant.	3 „	5	—	12	7	3	—	—	22	2
				275	50	634	440	323	156	78	1,681	259

Schools where a classical education is given are considered as higher schools. In most towns a school of this nature is established by the town council, and cheap education is provided for pupils of a different social standing. A new Act to regulate higher education has been submitted by the Home Minister to the Council of State; its provisions are not known, and it does not seem necessary to do more in this report than allude briefly to the existing regulations, which will perhaps soon be superseded.

Before the bill of 1863 regulating middle schools was passed, the gymnasiums (as these schools were called) were divided into two parts: one for those whose object was a classical education, and one for those whose chief object was a scientific education. The higher middle school supersedes this scientific department of the gymnasium.

In some communes the Latin school is entirely separated from the higher middle school, as at Amsterdam and at Utrecht; at Arnhem and at Rotterdam the higher middle school and the Latin school are in separate buildings and have a separate course of lectures for all branches, but some of the teachers are the same in both institutions. At the Hague and at Haarlem a close connexion exists between the two schools. At Veendam, a town with 9,808 inhabitants, the Latin school, the nautical school, and the higher middle school will be almost one, only the classical pupils will attend lectures in the ancient languages. The most difficult question to solve is whether there should be a long curriculum for classical and scientific training, or a short curriculum for each. The connexion of higher middle schools and Latin schools is strongly disapproved by some competent judges. At the Hague, for instance, a pupil is not admitted into the second department of the gymnasium (Latin school) without having been promoted from the third to the fourth class of the first department (higher middle school), or having passed an examination equivalent to the three years' course of the first department. The difficulty of course is, that by this arrangement pupils having had the benefit of the first department so far may prefer going on for two years to beginning again with the elements of classics, and remaining four years in the second department.

As a rule these Latin schools and gymnasiums are managed by the local authorities, the town council; 36 of the 61 have Government grants amounting altogether to 44,698 florins (3,725*l.*), and in their cases the teachers are appointed by the Home Minister; they are not inspected, though they are liable to Government inspection. The local authorities appoint a committee of curators generally from those citizens, who have a university degree. In some towns some of the curators must be members of the town council to represent this interest in the council, but this rule need not be mischievous, as the members of the town council are very often selected, if not from university

men at all events from cultivated men, who thoroughly value a good and sound education. To be member of the council of a commune is very often the ambition of distinguished men.

The budget of a Latin school or gymnasium is made by the curators, and settled by the town council as part of the general town budget. Only a few of these schools are endowed. The curriculum is generally for five years, only in some cases for four; the lessons occupy 32 or 34 hours weekly, *i.e.* six hours daily, with the exception of Wednesdays and Saturdays, when generally there is a half-holiday. The director of the school is called *Rector*, and he must be a *Litterarum Humaniorum Doctor*, but in the southern parts of the country this rule is not always observed, the salaries being too small to attract university men. At Amsterdam the rector has a salary of 2,800 florins (233*l.*) and a house; the con-rector 2,400 florins (200*l.*); the first preceptor 2,200 florins (183*l.*); the second 1,600 florins (133*l.*); the third who teaches history, 1,300 florins (108*l.*); the first mathematical master 1,600 florins (133*l.*); the second 500 florins (42*l.*); the Dutch master 1,200 florins (100*l.*); and the English, French, and German masters 1,000 florins (83*l.*). These salaries compared with those of the higher middle schools are not large; at the Hague, at Rotterdam, and at Arnhem they are better; in most places the teachers have a share in the fees, besides their fixed salary. All pupils pay a fee; there are no scholarships or bursaries; but as the fee is seldom above 100 florins (8*l.*) annually, very little difficulty is found in raising the money for deserving and poor scholars.

These schools are all day schools, and entirely secular; they are attended by all denominations and by all classes; in the Roman Catholic parts of the country the teachers are as a rule Roman Catholics. A few boarding schools exist, but their pupils have to pass through an examination, conducted by university professors, before they can become members of the university, whereas the pupils of the Latin schools and gymnasiums obtain a certificate from the curators on leaving the school, which insures their admission to the university.

At the Hague Latin and Greek literature, the Dutch, French, English, and German literature and languages, mathematics, physics, chemistry, and the first principles of mineralogy, geology, botany, and zoology are taught, besides history and geography. Classics and history are the principal object of the four years' curriculum; the other branches are merely continued after the three years' curriculum at the higher middle school. At Amsterdam classics, mathematics, ancient history, modern languages, modern literature, the principles of physics, ancient geography, mythology, and mathematical geography are taught in a five years' curriculum. The Latin school at Leiden is almost identical with that of the Hague, though the curriculum is one of five years. At Amsterdam and at Leiden Hebrew is taught to those who desire it, generally future theological students. The

authors read at the Leiden gymnasium are Nepos, Cæsar, Cicero, Livy, Ovid, Virgil, Horace, Terence, Xenophon, Homer, Lysias, Demosthenes, Herodotus, Lucian, Racine, Boileau, Voltaire, Molière, Uhland, Goethe, Auerbach, Hebel, Gellert, Schiller, Goldsmith, Shakspeare, W. Scott, Byron.

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